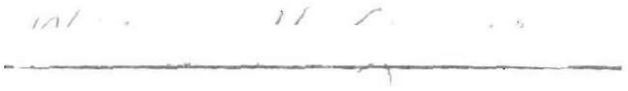
In presenting the dissertation as a partial fulfillment of the requirements for an advanced degree from the Georgia Institute of Technology, I agree that the library of the Institution shall make it available for inspection and circulation in accordance with its regulations governing materials of this type.

I agree that permission to copy from, or to publish from, this dissertation may be granted by the professor under whose direction it was written, or, in his absence, by the Dean of the Graduate Division when such copying or publication is solely for scholarly purposes and does not involve potential financial gain.

It is understood that any copying from, or publication of, this dissertation which involves potential financial gain will not be allowed without written permission.



THE PROBLEMS AND DELIMITATION OF THE CENTRAL BUSINESS DISTRICT

A THESIS

Presented to

the Faculty of the Graduate Division

by

William H. Qualls

In Partial Fulfillment

of the Requirements for the Degree of

Master of City Planning

Georgia Institute of Technology

May 1954

THE PROBLEMS AND DELIMITATION

OF THE

CENTRAL BUSINESS DISTRICT

Approved:

Date Approved by Chairman: 31 May '54

ACKNOWLEDGEMENTS

The author wishes to express deep appreciation to Mr. Howard Menhinick, Mr. Malcolm Little, and Mr. Maurice Brewster for their most generous aid, valuable criticism, and complete guidance throughout the preparation of this thesis.

TABLE OF CONTENTS

Page

ACKNOWLEDGEMENTS ii

LIST OF TABLES iv

LIST OF ILLUSTRATIONS iv

ABSTRACT v

CHAPTER

I. THE CITY AND THE CENTRAL BUSINESS DISTRICT . 1

Growth and Development of Cities
The Relationship of the City and the Central Business District
Functions of the Central Business District
Future of the Central Business District

II. DELIMITATION OF THE CENTRAL BUSINESS DISTRICT. 59

Theoretical Patterns
Indications of the Boundary
Final Determination of the Boundary

III. DELIMITATION OF THE ATLANTA CENTRAL BUSINESS DISTRICT. 91

Introduction to the Study of Atlanta
Indications of the Boundary
Final Determination of the Atlanta Boundary.

APPENDIX

I. A CHECKLIST OF THE PROBLEMS OF THE CENTRAL BUSINESS DISTRICT. 139

II. FLOOR SPACE SURVEY FOR THE STUDY AREA. . . . 159

BIBLIOGRAPHY. 170

LIST OF TABLES

Page

Table

1. Growth Trends in Percentage Increase for the Eleven Largest Metropolitan Areas of the Southeast, 1939-1950. 98

2. Floor Space, Ground Space, and Density Ratio by Block and Area for the Three Functional Combinations 162

3. Floor Space for the Three Functional Combinations in Each Grid Area. Total Floor Space and Ground Space for Each Grid Area . . 169

LIST OF ILLUSTRATIONS

Page

Figure

1. Land Use 105

2. Grid Areas 109

3. Floor Space Density. 110

4. Functional Areas 114

5. Pedestrian Traffic 123

6. Transit Volumes 126

7. Off-Street Parking Facilities. 128

8. Delimitation of the Atlanta Central Business District. 134

ABSTRACT

THE PROBLEMS AND DELIMITATION OF THE CENTRAL BUSINESS DISTRICT

(180)

William H. Qualls, Author
Malcolm G. Little, Thesis Advisor

The major purpose of this thesis is to establish substantial criteria for the delimitation of central business districts. A secondary purpose is to compile a checklist of the many problems faced by American cities today in their central business districts.

In the study of any area, one must first establish its functions and the relationship of these functions to outside areas before a boundary can be delineated. This is discussed in the first chapter.

Once the functions and their pertinent characteristics have been isolated, it is then possible to consider the factors which lead to the delimitation of their area of habitation.

The author found that the activities of the central business district could be grouped into three functional combinations of Retailing and Consumer Services, Business Services and Wholesaling without Stock, and Wholesaling with Stock and Manufacturing. Each of these functions has special needs which must be satisfied if it is to operate at its maximum ability, and each also has characteristics of development which are peculiar only to its activities.

These special needs and characteristics have been listed and defined as "indications" in Chapter II. They are Land Use, Density, Functional Areas, Rental Charge, Pedestrian Traffic, Transit Volumes, Parking Facilities, and Time-Cost Considerations. The study of these indications, through maps and text, will establish a preliminary boundary for the central business district. Resolving these indications into the final boundary will require an intensive field survey to cross-check the preliminary results and to make the concluding decisions.

The third chapter applies the technique developed in the preceding chapter to a case study of the Atlanta central business area. The indications were individually mapped, with each undergoing a thorough analysis. After these maps pointed up a definite preliminary area, an intensive field survey was made to cross-check the indications and resolve them into the final boundary.

The northern limit of the boundary is at Harris Street. The western boundary essentially runs along Spring from Cain to the Southern Railway offices. On the south, Trinity becomes the major boundary, continuing up to and around the governmental blocks. The eastern boundary encircles the rest of the governmental area and extends along Hunter up to Pryor. At this point, the boundary runs along the west side of Pryor up to Wall, where the properties on the east side become the boundary up to the Hurt Building. From here the boundary extends outward to include the Atlanta Division, the Fire Station, and the City Auditorium. The remainder of the eastern boundary essentially runs along Ivy up to Harris.

This final delimitation emphasizes the same four areas which consistently received the highest values in the indication studies: the Davison's shopping area, the Rich's-Whitehall shopping district, the office buildings in-between, and the governmental area. These results uphold the validity of using the indication method for establishing the proper boundary of the central business district.

The secondary purpose of this thesis was accomplished after thorough research on the central business district, and resulted in a listing of questions to be considered and answered in pointing up and solving the problems which confront cities in their central business areas.

Approved by: Malcolm D. Little, Jr.
Malcolm D. Little, Advisor

Date Approved: 31 May '54

CHAPTER I

THE CITY AND THE CENTRAL BUSINESS DISTRICT

The City

The history of the world, to a considerable degree, is the history of cities. Cities have been the centers of political power, the seats of religious influence, and the center of the development of arts and sciences from the early days of civilization. The Mediterranean ports were the focus of trade in the old world, and these seaports rose and fell in power and supremacy as their military might rose and fell.

Cities have been the magnetic poles to which have flowed goods and wealth from tributary areas and to which have been attracted the most energetic, the most able, and the most ambitious of the population. The dominating influences of civilization have flowed from the cities of the world. Economic, political, military, and cultural power has reached out from one city, such as Rome or London, into the far corners of the world, with trade as the traveling companion of this power. World society has been molded by the cultural influences of cities.

The history of civilization is a history not only of the growing dominance of cities, but also of an increasing

proportion of the population living in cities. The rate of increase was moderate and irregular before the Industrial Revolution, but afterwards sharp increases were the pattern in urban population growth. This urban growth was more rapid in the United States than in Europe after the change to modern Industrial Urbanism.[1]

Although the process of urbanization has been complex, the basic forces can be readily identified. The change from a rural to an urban way of life, in general, has been the accompaniment of a change from a simple handicraft economy to an advanced type of modern industrialism.[2] Cities have, in a manner, developed as integral parts of the productive and distributive machinery. This economic equipment comprises, in part, the spatial pattern in functional areas, the street system, the buildings of the city structure, and the people who work, play, and live therein. Although our factories and efficient machinery have developed through efforts of skilled planning, the same, unhappily, does not apply to the development of our cities.

Location of Cities

Geography, of course, has had much to do with the location of cities. Before the Industrial Revolution, when

---

[1]Richard U. Ratcliff, Urban Land Economics, New York: McGraw-Hill, 1949, p. 19.

[2]National Resources Committee, Our Cities, Washington: U. S. Government Printing Office, 1937, p. 26.

war was continually rampant, the cities which were favorable to defense were the ones that prospered. Thus, many Greek colonies were established on islands, Rome on seven hills, London in the swamps, and Paris on an island.[3] As trade assumed a predominant role in society, favored areas were those located at breaks in transportation along the routes of communication between the source and final market for the goods. Thus, cities grew where navigable bodies of water met the land, or where navigable waters met or crossed; they grew at intersections of overland trade routes, where the mountains found the plains, and at river obstructions which required unloading and transfer or change to another means of transport.

As the importance of industry grew, locations grew most rapidly which had some economic advantages for certain types of industry; such as raw materials, necessary power resources, skilled labor, a certain climate, or a large market for the product to be produced.

Though manufacturing and trade are the predominant activities in most urban areas, many owe their existence to other activities. But even these special function cities are found at locations with special natural advantages, suitable to their needs. Thus, recreational and health centers have been located in areas where climate or other

---

[3]Richard M. Hurd, Principles of City Land Values, New York: The Record and Guide, 1924, p. 22.

geographic considerations have proved advantageous to their purpose; mining centers, or others associated with different extractive processes, located where nature gave them "strikes"; and political capitals, where laws are made and administered, have been placed with regard to centrality in the area of jurisdiction, seeking a location of optimum accessibility.

Transportation

The limited nature of the transportation facilities of the past favored concentration of industry, commerce, and other human activities. Without the enormous accomplishments in the transportation industry of mass transit, railroads, trucks, buses, and private cars, the difficulties created by the movement of men and goods within and between cities would have prevented the development of cities of the size, complexity, and efficiency that characterize our economy today.

Centralization of manufacturing and distribution could never have occured without this parallel development in the methods of transportation. In addition to allowing for a wider territorial separation of producing and distributing functions, these advances have also contributed to specialization and the division of labor as well as to the mobility of labor.

Land Use Structure of the City

As cities grow and mature, a rational pattern of land use tends to come about; a basic structure composed of the several functional areas in which are concentrated the main urban activities such as recreation, retailing, residential, etc. In spite of minor differences resulting from variations in size, topography, and accidents, the same basic tendences appear in all cities.[4]

Increasing specialization of function has characterized the growth of our present economic organism. As settlements grow into towns and cities, there is evidenced an increasing tendency for uses of like character to group together in functional areas. The segregation of social and economic groups of the population is reflected in the increasing variety of the quality and type of housing. Within the central business area there appears a definite tendency toward the grouping of like uses.

In every city, there is discernible a rational land use pattern, and the processes of readjustment to changing conditions are always in motion. And this is the basic cause of land use inefficiencies: the constant lag resulting from the dynamic nature of society, socially, economically, and technologically, which impinges upon the rigidity of physical improvements. This long physical life of

---

[4]Ratcliff, op. cit., p. 368.

improvements, continuing far beyond the time when they adequately serve the needs of the community, creates a major obstacle to the readjustments in land use to changing conditions; for replacing an existing improvement is not justified until the value of the cleared land exceeds the present value of the improved land. The basic difficulty lies in the inability of men to make long-term forecasting of all social, economic, and technological changes with exactness. Another difficulty is the high cost of buildings. Even when it is possible to foresee a change within a few years for a particular location, which would justify a type of land use not presently supportable on the site, it is not often possible to construct a building for a use that is presently appropriate at a cost which is low enough to be retired over the short period of time in which the building will be used.

Location of Land Uses

Each urban land site, at any given point in time, is fixed within a set of space relationships with all other sites which have significance mainly in terms of the use made of all other sites and the human activities taking place there. For example, a site in the CBD would have great value for a retail use if other large retail uses were close-by, but the same site would have a negative value if it were to be used for residential purposes. That site for which any given land use is most advantageous is that

site having the particular set of space relationships most favorable for that use which can be translated into an economic rent paying capacity that is greater than is possible for that use on any other site. That land use which for any given site is most advantageous is that use for which the set of spatial relationships associated with the site is more favorable than for any other use, and which can, therefore, outbid others for the location.[5]

Convenience to the greatest number of people is required by some uses; thus, the CBD, in the center of the city at the focus of transportation lines, is in high demand and commands high rents. Factories might desire a location that would be most convenient for their workers in traveling back and forth to work, but they would also have to consider proximity to transportation facilities for efficient delivery of raw materials and finished goods, and other needs of their special activity.

Haig has indicated that each human activity can be broken into functions and how, for each function, a definite set of space relationships is most advantageous.[6] Thus, in many cities, various functions compete for the most favorable locations, and the packet of functions that usually make up some of the familiar land uses are sometimes divided with

---

[5]Ratcliff, op. cit., p. 373.

[6]Robert M. Haig, Major Economic Factors in Metropolitan Growth and Arrangements, New York: Regional Plan of New York and Its Environs, 1927, p. 39.

certain of the functions being carried on in other locations where the rent is appropriate. As an illustration, a department store might sell some of its merchandise from floor samples while the actual goods going to the customer are wrapped and shipped from a warehouse miles away. An enterprise involving many functions, and each function having a different set of space relationships most favorable to its operation, is faced with a rather complex site problem requiring the balancing of advantages and disadvantages for the various functions.

Several types of urban land use are not competitive in the sense of finding the same sites advantageous. A high class residential district will tend to avoid railroads, while industry will quite often seek locations in close proximity to them. But, where competition exists, it is one of two kinds: competition of uses, each of which finds a special and different advantage in certain space relationships that characterize the site, such as the competition of an industry and a residence for a site on a river bank; or a competition of uses of similar character where each use seeks to exploit approximately the same set of space relationships, such as the competition of two types of retail outlets for a central business district location where there is a particular advantage in being at a location which is most convenient to the greatest number of people.[7]

---

[7]Ratcliff, op. cit., p. 385.

The Costs of Friction

The problem of land use space relationships faced by the city is that of creating an efficient city structure within which all the functions of working and living can be carried on with the minimum of time and money cost in transportation. The underlying objective of city planning is to minimize the "costs of friction", which are the sum of transportation costs and site rentals for the aggregate of all land uses. Thus, the best planned city is one where the aggregate site rents are least and/or the transportation system is superior. Rent is the charge which the landlord can levy in return for savings in transportation costs.[8]

Transportation costs and site rents are complementary in the sense that possible renters of the sites adjust what they are willing to bid in accordance with the transportation savings in cost that the use of a particular site will permit. Improvements in transportation which help only a particular area will result in higher rents for that area, but general improvements in transportation will reduce the difference or relative advantages in convenience for a particular area and result in rent reduction for the area whose advantage has been reduced.[9]

---

[8]R. M. Haig, Major Economic Factors in Metropolitan Growth and Arrangement, New York: Regional Plan of New York and its Environs, 1927, p. 39.

[9]Ratcliff, op. cit., p. 372.

The opportunity for any one land use, seeking the lowest total of rent and transportation costs, to minimize the total is limited by the competition of lower type uses which will bid up to the savings in transportation costs that the use of a certain site will permit. Not only must the cash cost of transportation be considered, but the time element as well, and other disutilities of travel such as uncomfortable or inconvenient transportation facilities.

These travel disutilities must also be compared with the value systems of the social groups who are involved in traveling. Religious groups seek locations near the church; while a family with children might prefer to sacrifice proximity to work for a location near school facilities.

Conclusion

It might be said that the land use structure of the city is determined through convenience and the dollar evaluation of its importance. The many potential urban land users are concerned with various convenience desires which reflect each special combination of functions in one enterprise. While a certain type of convenience may be very essential to certain uses, it may well be a matter of total indifference to another type. The space relationship focus for residential uses is outward, for the convenience of the family is the determinant of the economic rent; while the retail outlet has an inward focus, from the potential

customers within the zone of influence, for it is this convenience for customers that determines the rent-paying ability.

The Central Business District

Whether an urban community was established at a junction of overland trade routes, along a navigable water body, at an inland break-of-bulk or change-of-ownership transportation site, or at some strategic point favorable for mining, manufacturing, religious or resort activities, the primary focus of internal activities and the major contact with a tributary area was found in the business district.[10] This is the characteristic that makes the Central Business District (CBD) the predominant area within a city, regardless of size. However, for the purposes of this thesis, reference to the CBD will be made in terms of the larger cities and their central district area rather than attempting to deal with the various degrees of size and concentration. This does not mean that the functions and characteristics of the relatively smaller central districts differ completely from that of larger cities, but, rather that the difference is mainly one of degree; and in this respect, restriction to a larger CBD study area appears justified.

---

[10]George W. Hartman, "The Central Business District-A Study in Urban Geography", Economic Geography, vol. 26, October, 1950, p. 237.

The attraction which draws people into the central business district is the complex of functions performed there; consisting of social, cultural, political, and service functions as well as administrative and trade activities.

The CBD is not only the principal location of certain types of economic and social organizations, but it may also well be the political and economic headquarters of the metropolitan area. As one anology states: the headquarters area serves the same function as does the office in the industrial plant; all lines of control for all the other parts of the establishment and for its outside activities interact there, forming a strategic center of the web which unifies the rest of the city and binds the city to its hinterland.

It is such managerial functions that tend to make this part of the city a point of dominance rather than the mere aggregation of retail establishments and the convergence of transportation routes. It is the area where intelligence is received and transmitted, where brains and ability concentrate, where the community is most alive.[11]

Johnson, in his land use analysis of Chicago's CBD, describes the CBD as the area where the economic life of the city reaches its maximum intensity. Of all the market

---

[11]R. D. McKenzie, "The Concept of Dominance and World Organization", American Journal of Sociology, 33:30, July, 1927.

and business areas of the city, here is located the one exercising the greatest dominance. Here also are concentrated not only the market institutions in the strict sense of the term marketing, but also the coordinating, controling, managing, policy-forming, and executive institutions which are integral parts of the great metropolitan market structure. Furthermore, the dominance of the area is, in part, a function of the fact that the CBD is also the ecological center of the city. This is true because here is that spatial position within the community structure where, due to the time-cost transportation relations which it bears to all sections of the market area, a complex of economic institutions is able to operate with optimal efficiency--and this, despite the exceedingly high land values and rents. The ecological center of Chicago does not happen to be the geographic center. If the lake did not prevent areal expansion on the east, it is fair to venture that the two centers, with reference to the local market, would be the same. The ecological center always marks the position of greatest economic activity. And the CBD is the focus of the city in another sense: from this area the community has grown concentrically like the rings of growth in a tree. It is the mother cell from which the whole community has emerged. Finally, it is both the oldest and newest area of

the city, for here was its place of birth and here is always found the confusion of change or fresh beginnings.[12]

If there is one feature of the CBD which is the most prominent, it is that this area and the metropolitan district of which it is the center are inexorably tied together in a web of reciprocal relationships.[13]

The CBD is concentrated around the focus of intracity transportation by sidewalks, mass transit, and private car. Because of the asymmetrical growth of most cities, it is not generally in the geographic center of the city, but actually nearer one edge. Because established internal transportation lines converge on it, however, it is the point of most convenient access from all parts of the city, and, thus, is the point of highest land values.

The process by which the many functions settle in the CBD seems to be determined in part by tradition, convenience, accessibility, and economics. Johnson states this economic principle to explain the selective character of the Chicago CBD functions: those economic functions which were located in the CBD, in any given economy, were those whose books, so to speak, could still show a profit after the charges for

---

[12]Earl S. Johnson, The Natural History of the CBD, with Particular Reference to Chicago, unpublished Ph. D. dissertation, Dept. of Sociology, Univ. of Chicago, 1941, p.5.

[13]Gerald William Breese, The Daytime Population of the Central Business District of Chicago, Chicago: Univ. of Chicago Press, 1949, p. 25.

site rent had been subtracted from the gains which accrued to them by virtue of their location at this strategic communication and transportation center. With respect to non-economic functions, a position in the CBD permitted them to perform in a more efficient manner than did any other location within the community. This was also largely due to the fact that this was the center of communication and transportation of the city. For both economic and non-economic functions, this area has been the place where each could most effectively exercise its greatest dominance, i.e., perform to the maximum its proper activity.[14]

The situation of the CBD means economy to both the businessman and his client in terms of time, convenience, and efficiency. Even the most casual observer of the CBD activities is aware of the main business of this area. It should seem logical that administrative offices, professional work, and specialty merchandising should predominate. It is likely, however, that the casual observer does not realize the extent of these activities and the tributary functions that relate to them. He does not stop to think why some functions can be found at the center which are not available elsewhere. Perry has indicated that main banks,

---

[14]Johnson, op. cit., p. 7.

large department stores, dealers in musical instruments, furriers, jewelers, etc., generally are found only in the CBD.[15] It is apparent; however, since the outlying business districts have developed, that it is unnecessary for many to go downtown quite so often. In spite of this, the functions of the CBD have remained pretty much the same over a long period of time, and though more and more people live farther and farther from the CBD, the number attracted to it daily changes surprisingly little.[16]

Expansion and Decentralization

The changes in function that are taking place seem to be due mainly to expansion of CBD activities desiring to tap exclusive markets which do not materially affect the CBD as a whole; and decentralization or duplication of CBD services in outlying areas which can have considerable effect on the central area.

During the growth periods of the city there is a constant shifting of the land-use structure as adjustment takes place to the new needs of the community. Ecological shifts involve a succession of uses, the altering of structures for new uses or the demolition and replacement of existing buildings. Sometimes the succession does not involve a

---

[15]Clarence Perry, "The Neighborhood Unit, A Pattern for Planning Residential Developments," Neighborhood and Community Planning, New York: Regional Plan of New York and its Environs, 1929.

[16]Breese, op. cit., p. 1.

distinct change in use, but rather a more intensified nature of the same use, as in the replacement of a small two-story office building with a skyscraper office structure.

Also, as cities grow, there is an increasing demand for land for commercial and recreational use, for public buildings, churches, transportation facilities, and public utilities. The CBD uses expand and push outward against the surrounding less intensive uses.

Many times these less intensive uses form a partial ring of blight around the CBD which is characterized by physical deterioration and a mixture of land uses. This is a zone in which the replacement of existing uses is not economically justified or where succession is delayed by the over-optimistic judgement of property owners who over-value their land and ask exorbitant prices for its purchase. Often this blight is the product of a combination of factors which have checked CBD expansion, and the blighted area can only deteriorate further until the owners are willing to accept prices for their land that can be justified by the uses appropriate for that location.

As the CBD expands into other areas, it often leaves in its wake a blighted and obsolescent area. Business concerns abandon the older buildings for newer structures that are more strategically located and better adapted for their special purpose. The cast-off buildings are usually occupied by concerns catering to customers with less metic-

ulous tastes and demands; such as cheap hotels, second-hand stores, pawnshops, "greasy spoon" eateries, beer parlors, light manufacturing, etc.

Decentralization of some CBD uses and growth in the importance of outlying retail centers has also decreased the importance of the CBD; accounted for in part by the decline in the convenience advantage of the CBD.[17] The automobile and the bus, together with CBD congestion, account for a portion of this convenience decline. Another factor is the population decline in the center of the city which is the area most convenient to the CBD, and the accompanying growth in the peripheral areas which are most convenient to the outlying shopping centers.

Another factor which has developed to diminish the need for CBD area in relation to the population is the technological advance in the skyscraper and elevator. This has led to vertical expansion and results in creating less demand for ground area.

As the growth of cities slows down and their economic structure becomes stabilized, it seems likely that the CBD will cease expanding in ground area, although there will still be many economic, social, and technological changes which will affect the character of the CBD in other ways. Many cities, large and small, have apparently approached the upper limits of size, and some are destined to remain

---

[17]Ratcliff, op. cit.,

stationary or actually lose population. In such communities, relatively little expansion of the commercial area will occur and the business district will remain in the same location with only minor changes around its margin.[18]

Central Business District Land Values

Urban land values are determined by the space demands and this demand can exist only where there is a concentration of population or a possibility that such will exist in the future. In addition to being of great economic importance, real estate values affect human relations in many ways, and in turn are affected by the movement and distribution of people and commodities, by race and culture, by standards of living, and by transportation facilities.

In a land value study for St. Paul, Schmid found that the highest land values, from $3,000 to $5,000 per front foot, were at the principal points of traffic convergence, and the uses in this "100 per cent district" were large department stores, the variety chains, the smart apparel shops, interpierced with drugstores, restaurants, and

---

[18]Noel P. Gist, and L. A. Halbert, Urban Society, third edition, New York: Thomas Crowell Co., 1950, p. 115.

and specialty stores. These values diminished as they got farther from the central focus until the lesser CBD uses were paying $100 to $300 per front foot.[19]

Pedestrian Traffic and Land Values

The weather vane of land and rental values in the CBD is, in general, considered to be the pedestrian traffic, and streets with the heaviest volume during a day are the most favorable locations for certain types of CBD uses. The ones which are usually willing to pay dearly for these locations are the large department stores, variety stores, restaurants, drug stores, and women's clothing shops. This pedestrian movement is very responsive to physical and climatic conditions such as winter winds and hot summer suns. These conditions influence the flow of foot traffic, and indirectly, land values. Pedestrian traffic is very capricious; it may shift from one place to another because of certain physical changes, and retail establishments tend to follow its general course. The land values depend not only on the volume of traffic attracted to a specific area but also on consumer tastes and interests, their purchasing power, and transportation facilities.

---

[19]Calvin F. Schmid, "Land Values as an Ecological Index," Research Studies of the State College of Washington, Seattle: Univ. of Washington, Press, vol. 9, pp. 31-36, March, 1941.

The Functions of the Central Business District

There is little disagreement between most authors and professional men as to what functions properly characterize the CBD. The confusion which does exist in identifying these functions seems to come from the degree or extent to which various individuals desire breaking them down. Often these functions are listed as social, cultural, political, service, trade, and administrative. At other times these classes are combined to form fewer groups, or broken down to form additional groupings.

The functional classifications used in this thesis do not subtract from what are usually considered CBD function, but rather combine the activities into groups having a common denominator or characteristics which distinguish them from others.

The land use types of the CBD must be established before the functional areas can be located. The usual method of classifying land uses in the CBD would be through a listing of commercial, industrial, and public uses. These types are not specific enough to adequately cover the needs of this thesis. A more detailed breakdown of basic land use types will be used here, and these types will then be used to form functional areas.[20]

---

[20]Alderson and Sessions, Philadelphia Central District Study, Philadelphia: City Planning Commission, 1951, p. 3.

The basic land use types differ from each other in terms of who must have access to the site and for what purpose. These would be:

Retailing: All establishments selling goods primarily to the customer, including department stores and specialty shops with area wide attraction and service or convenience stores serving the daytime population.

Manufacturing: All establishments engaged in the production of fabricated goods, ranging from loft manufacturing upward.

Wholesaling with stocks: Wholesaling establishments which keep stocks on the site and sell from them; necessitating display rooms and warehouses.

Wholesaling without stocks: Establishments making sales transactions without maintaining stocks on the premises. The usual requirement here is for office space; occupied by brokers and commission men, and wholesalers, for such products as coal and lumber, where the wholesaler takes ownership but not physical possession of the goods.

Business Services: Activities for which the other establishments are customers and in which services, rather than goods, are sold. The usual requirement here is also for office space; occupied by law firms, advertising agencies, insurance or real estate agencies, engineering firms, etc.

Consumer Services: Establishments providing services to the consumer. This group ranges from repair and barber shops to museums and churches, having a wide range of public, professional, and personal service in between.

The second classification method involves the grouping of these six basic land use types into three classes and labeled functional combinations since they provide a basis for determining functional areas.

Manufacturing and Wholesaling with Stock: These activities require large amounts of space for the storage and handling of goods, usually provided for in the form of factories and warehouses; and both tend to repel other types of activity.

Business Services and Wholesaling without Stock: Both of these classes can usually afford maximum convenience and prestige in location, and primarily require office space. Both deal with other businesses rather than the consumer, and neither keeps goods on the premises.

Retailing and Consumer Services: These two activities are primarily held together by pedestrian consumer traffic. Although usually found together, they are not commonly in balanced proportions. Large service establishments, such as public institutions, create opportunity nearby for small retail stores, while large retail establishments, by drawing consumer traffic,

create opportunity in the immediate neighborhood for small service establishments.

To more completely understand these functional groupings, it is necessary to discover their relationships to each other and to outside areas, their needs, and their major characteristics. This will be discussed in the remainder of this chapter.

Retailing and Consumer Services

Retailing.--This is a CBD activity which undergoes constant change as the population increases or decreases, and the standards of living rise and fall. It is the greatest consumer drawing power in the CBD and also accounts for a large group of the regular daytime population in the form of the clerical staff necessary to the operation of the retail establishments.

This area remains the market place or bazaar to which customers must come to examine available assortments and select items fitting their peculiar needs; and its special attraction lies in the advantages it offers for competitive shopping, wide selection, variety, comparison, and luxury items unavailable elsewhere.

If merchandise is fully standardized, it is not necessary for consumers to buy in the CBD. Not only packaged foods but all other branded products can be sold at any convenient point at which enough customers are available to provide a necessary profit to the enterprise. Appliances

and many household items tend increasingly to move through outlets nearer to the city residential areas. The latest in fashions and materials, and the luxury lines, however, tend to be anchored in the CBD where the customer buying power permits the stores to handle this type merchandise and still not lose heavily if the latest fashion suddenly becomes a dud. In selecting an article, such as an expensive dress, the purchaser is measuring the article against urban standards, and her yardstick for such standards is likely to remain in the CBD stores in apparel, home furnishings, and several other lines.

From the standpoint of the CBD stores, there is a constant battle to get the maximum amount of sales from a limited amount of high-priced space, and the development of new products and of changing styles allow them to do this, while standardization tends to favor the decentralized shops. The CBD retail outlets must capitalize to the fullest extent on their opportunities to sell additional items since they steadily lose out proportionately to surburban shops on many articles that enjoy a national reputation.

The larger stores are likely to continue to move in the direction of partial decentralization, breaking down their packet of functions and locating them in the most advantageous areas. Those which have tried opening branch stores find that the main store has been strengthened in a

number of ways.[21] This also tends to remove an additional number of transactions from the CBD in which convenience rather than style is the major consideration. The warehousing function of large retail stores has largely been decentralized, and many articles, such as furniture or other bulky household items, are sold in the downtown store from floor models and the actual purchase moves directly from the warehouse to the consumer's home.

The enormous growth in the suburbs of American cities will undoubtedly pose some serious problems to the downtown retailers.[22] As one example of this growth, St. Louis' suburbs grew forty-eight per cent while the city itself added only six per cent to its population between 1940 and 1950. This population growth tells only part of the story, for in addition to being "new customers", they are also better customers, (being younger, having more children and thus potentially bigger spenders than city families) and have an average income estimated at $6,500 a year, seventy per cent higher than the income of the average American family. Many of the big department store branches are already taking advantage of this ready cash and are stocking many items in their suburban branches which would be out of place in their main CBD outlets.

---

[21] Ratcliff, Urban Land Economics, op. cit., p. 58.

[22] Time Magazine, "Flight to the Suburbs", March 22, 1954, p. 102.

A Chicago Census of Business taken nineteen years ago showed that only 5.5 per cent of the retail stores in the city were located in the CBD, but that they did twenty-six per cent of the total business of retail sales.[23] The extent to which "suburbia" and outlying shopping centers will affect the CBD retail stores in the future is a question of vital concern to the nation's businessmen.

The balance between specialty stores and department stores in the downtown areas appears to shift back and forth within a moderate range over the years. The specialty store, undoubtedly, has a greater appeal to the consumer whose tastes lie in one particular direction. Some consumers, just like stores, tend to be specialists. This varies all the way from the lady who desires the special fashion model from the custom-made apparel shop to the "camera-bug" who must have his specialized equipment. Collectors and hobbyists are more likely to go to specialists in records, books, and camera supplies than to the corresponding departments in the large retail store; while the consumer who has to select many items within a limited amount of shopping time will prefer the large department store.

There are a number of factors that influence the amount of space required by retail outlets and that account for, in part, the variation among cities in the relative

---

[23] U. S. Bureau of Census, 1935 Census of Business, 1935, p. 27.

extent of retail land use. Bartholomew found that the ratio of store frontage was highest in cities of 50,000 to 100,000 population; that it was considerably lower in smaller cities, and that the ratio decreased from the high point as population increased.[24]

Population density is one factor in determining the demand for retail space. Where population is concentrated, fewer stores are needed than where the opposite is the case. Another factor is the city's hinterland area. The social and economic characteristics of the people are also determining factors, for their pattern of expenditures are conditioned by their income and social values.

Two factors which bring about changes in demand for retail space within an area are changes in population and changes in family income levels. Although demand for retail space increases with population growth, it is not in direct proportion; while population decrease brings a lessening demand whose readjustment tends to lag behind.

It has been suggested many times that there is more land in retail use than is economically justifiable. This situation is the result of the misguided optimism of individuals coupled with the relative ease with which a retail business can begin.

---

[24]Harland Bartholomew, "Urban Land Uses", Harvard City Planning Studies, IV, Cambridge, Mass: Harvard University Press, 1932, p. 77.

The qualitative aspects of a retail site are its location, size, and shape. The most important of these is location, for the merchant can adjust his operations to fit an area limitation, but there is relatively little that can be done about an improper location.

Each retail site is the focus of a unique combination of social and economic forces. Thus, locations vary due to the difference of geographical relationships with existing land uses and population groups. The value of a site for retail purposes lies in these relationships, for each merchant prefers that situation which is most convenient to that group of potential customers he seeks to serve. Since there are several retail outlets seeking to serve all consumer groups, it is apparent that all stores cannot be located with equal convenience. Thus, the various retailers compete for the preferred locations, and the final retail pattern is determined by a process of competitive bidding.

There is a more or less definite set of standards used by each type of retail store in selecting locations. They attempt to find spots that closely conform to their standards, for experience has shown that they cannot afford to operate profitably in another location.

Ratcliff has listed standards for site selection practice among large national chain stores.[25] First, the

---

[25]Richard U. Ratcliff, "The Problem of Site Selection," Michigan Business Studies, vol. IX, no. 1.

number of potentially acceptable locations is limited to the generally appropriate parts of the city retail structure. Next, the acceptable areas are tested on the basis of whether another store of their particular type can be supported. This frequently requires a careful analysis of potential volume of business that can be done at a particular location. This potentiality is based upon a quantitative and qualitative analysis of pedestrian traffic, often supplemented by estimates of the sales volume of competitors in the vicinity. The objective of the pedestrian traffic count is to determine the number of potential customers who pass the site or who are in the vicinity and might be attracted to a store located there. Site traffic counts relate mostly to impulse shopping; for shopping goods, counts at various points in the immediate vicinity are necessary; and for specialties, traffic counts have little or no meaning.

All chains attempt some prediction of the future of the retail district and to forsee any shifts that may affect the traffic stream and the sales volume of the site being considered. They avoid any districts showing a decline, and where shifts in the retail district are apparent, they attempt to secure a location advantageous to this shift.

There are a number of site characteristics that are regarded as detrimental to all retail outlets, such as nearness to undertaking establishments or land uses that create objectionable odors or noise. Blocks that are unusually

short, or where the shopping continunity is broken by banks, churches, or institutions, are not desirable; and level terrain is definitely preferred to locations necessitating hill climbing for potential customers. Too much traffic, creating congestion, is detrimental; and dilapidated and unsightly structures are quickly avoided.

The variety store chains insist upon sites that are in the vicinity of the women's shopping zones; while drug stores have more flexible requirements, the major consideration being convenience to large numbers of people. Restaurants and eating places try to locate at points near the economic groups they serve at mealtimes.

The women's shopping goods stores are the most highly crystallized group of retail structures in the CBD. This district, at the focal point of the transportation system and most accessible to the greatest volume of purchasing power, is usually the core of the retail area. To facilitate comparison of apparel shop offerings, the convenience of one shop to another is important to the customer. The common household practice of shopping expeditions, which involve visits to a number of different type outlets, encourages the clustering of those shops which are most often the target of the expedition. The combination most frequently involves department stores, apparel shops, and variety stores.[26]

---

[26]Ratcliff, Urban Land Economics, op. cit., p. 61.

Variety stores are found in this group not because of comparison shopping factors, but because small purchases offered in the variety outlet are normally incidents to the shopping expedition. Women do not usually make a special trip downtown for variety store purchases, but rather accumulate their needs in various lines until it is worthwhile to make the trip in the interest of a number of purchases. It is very convenient, then, for the shopper to find the varieties closely located with respect to establishments previously mentioned which originate shopping expeditions.

The high-class women's apparel stores are often separated from the popular-price areas due to the buying habits of upper-income groups. These women usually make the trip by private automobile rather than mass transit, thus presenting less reason for these stores to locate at the center of transportation facilities. In fact, there is an advantage in avoiding the congested center and locating in an area most accessible by automobile to the fashionable residential areas. The shopping of this group is concerned more with quality, prestige, and fashion rather than price considerations.

Jewelry stores are most likely to be found at the periphery of the women's shopping district. The jewelers rarely compete successfully for the choice sites in women's district because of the fact that many items offered by the jeweler are of relatively high economic importance and purchased only infrequently. The fact that there is little

tendency for jewelry stores to seek each other's company intimates that jewelry buying does not necessarily involve immediate comparison among several shops.

Furniture stores are usually on the periphery of the CBD. Competition with other uses for choice sites is limited for these stores due to the large bulk of stock which requires considerable display and storage space, and furniture purchases are made rather infrequently. Since furniture purchasing is not usually incident to the general shopping expedition, there is no strong incentive to locate near other particular uses.

Consumer Services.--This activity and retailing are primarily held together by pedestrain traffic and though usually found together, they are not necessarily in balanced proportions.

Consumer services form the broadest category of all the six basic land use types as to type of facility, although it covers only those establishments providing services to the consumer, it ranges from repair and barber shops to museums and churches, with a wide range of public, professional, and personal service in between.

A three way division of this category should assist in the understanding of the varied types of facilities. This would consist of services requiring presence of the consumer, services not requiring presence of consumer, and public institutions.

The first group includes establishments such as medical and dental services which require downtown office space since their service area is the entire city, and oftentimes a wide hinterland region. It is also necessary that within the CBD they are linked to public transportation and accessible parking areas. While somewhat less importance is attached to location by this professional service than by retail merchants or other consumer services, the physical characteristics of the building and the services provided by the landlord are more important. Thus, landlords often equip their buildings with special services and facilities to attract the special occupancy of professionals such as doctors and dentists. Other considerations which tend to form medical groupings are the practice of referring patients from one specialist to another, and the prestige attached to a location in a building housing the offices of prominent members of the profession. Such specialized buildings or streets often attract small retail outlets which supply drugs, prescriptions, eye glasses, and other goods which are necessary after visiting the physician or other consumer service specialist.

Other establishments requiring the presence of the consumer would be the personal appearance shops such as barber and beauty outlets, and the hotels used for residential and group gathering purposes. The barber shop type service draws heavily on the CBD daytime population and does not

require strategic location near transportation lines, but, rather satisfies its need by drawing from pedestrian traffic and often acting as a particular service to specialized buildings. Department stores also have shown a tendency to include some consumer services in their new departmental expansions; often boasting of personal care services such as beauty shops, and repairing services for watches, clothing, etc.

Because the hotel can use its land rather intensively, it can compete for relatively high-priced locations if such seems advantageous. The patrons of the better-grade CBD hotels can generally enjoy greater accessibility to whatever contacts they desire by being in a downtown location than would be possible elsewhere. Those patrons who visit the metropolis for business conferences or for professional services usually can find most of their conferees in or near the CBD. If, however, the persons they want to see are scattered in different parts of the city, they can be reached from the central location with less total travel than from any other part of the metropolis. Those who visit the city for shopping or recreation generally find it more convenient to stay close to the stores, restaurants, and theatres of the CBD. Groups meeting for a convention need a central location if a large delegation is to have greatest convenience; otherwise, they can locate anywhere near the long-distance transportation terminal. But, since

the major transportation arteries converge in the CBD of cities from regional and local areas, the qualifications of the CBD in this respect are again extremely high. Because of these advantages, together with the fact that most CBD hotel stay is short, large numbers of patrons willingly pay the prices necessary for securing accommodations in the CBD.

Consumer services are also provided in the form of recreational activities, such as theatres, bowling alleys, billiard parlors, and recreational clubs. Of these activities, the theatre stands out as being able to compete in the high land value areas of the central district. Although much of their patronage is in the evening hours, the demand for daytime entertainment has made it profitable for theatres to open also in the morning or early afternoon hours.

Many associations, clubs, lodges, and fraternal organizations have their major activities occurring in the CBD, while others only have their headquarters there. Quite often these groups meet for the noon-day meal, and the CBD is most convenient location for the entire membership.

Many social activities find the CBD the proper area for their location. Usually it is only the large metropolitan area which can support many social and cultural institutions. Convenience to this tributary area is gained through location near adequate transportation facilities. This would account for many of the CBD's art galleries, legitimate theatres, art dealers, musical institutions,

and symphony and opera.

Consumer services not requiring the customer's presence, such as laundries and dry cleaning establishments, repairing and storing activities, are largely being decentralized. Other CBD establishments such as department stores and hotels have added these activities to better serve their customers and reap additional profits from their high price land. Where these services exist privately, they are usually found in the lower value areas of the CBD due to their inability to successfully compete for other locations.

Public institutions such as auditoriums, museums, and libraries have considerable leeway in location since visits are of a leisurely and recreational character. Public institutions to which people make more frequent trips, such as the city hall, court house, post office, etc., for services or legal transactions are more limited to location because of the requirements of public convenience. Another important consideration with respect to public buildings is of fiscal character. As these buildings are erected, the area occupied is removed from the tax base. Therefore, whenever considerations make it plausible, locations outside the high value areas should be selected to avoid destroying potentially taxable commercial lands.

Sites for police and fire stations are located with a view to convenience and maximum efficiency in serving property owners and individuals. Governmental buildings

locate in the CBD as the focal points of the area they serve. This also facilitates the necessary frequent contacts with businessmen, lawers, and business organizations.

Sometimes, churches and hospitals locate in the fringe areas of the CBD. Churches are found here because their congregation happens to be city-wide, and hospitals, with the main purpose of serving emergency cases, find it convenient and efficient.

Business Services and Wholesaling Without Stocks

These two classes of activity can typically afford maximum convenience and prestige in location and primarily require office facilities. Both deal with business rather than the consumer, and neither handles goods on the premises.

Business Services.--This category would cover such subclasses as law firms, advertising agencies, real estate, banking, insurance, engineering, and other types of independent consulting organizations.

In small cities the business services are usually scattered throughout the CBD, while in larger cities the services tend to group together. This often results in a financial district, the office area, or the lawyers building.

From the standpoint of economics it is not necessary that these groups be located with relation to maximum transportation accessibility. This is due to the fact that the majority of their services are performed for and with other

business, and convenience for the pedestrian consumer does not require consideration. However, since their average space demands are relatively small and their economic gains high, these services can afford to pay the high rents which are asked in the most convenient and accessible areas; and these are the areas in which their office space is predominantly located. Prestige, attractiveness, convenience, and tradition are factors determining their location.

Business service offices catering to local customers tend to locate near the convergence of transportation lines for maximum convenience and accessibility to other business.

In contrast, many business offices in a metropolitan city conduct a regional or interregional, rather than a local business. These offices have no economic need to be near other business except that administrators in such offices often desire personal conference with bankers and other businessmen. For this reason they cluster together in a financial or office district.

If clients are drawn in part from outside the city, these activities are particularly concerned with the facilities available for entertaining them while in town. Hotels, theatres, restaurants, and sports events are part of the picture of national competition in attracting and holding such activities. For example, advertising agencies may be influenced to locate in New York almost as much by its entertainment possibilities as by concentration of

headquarters for advertising companies. Ease of travel to other parts of the country is another major factor in holding and expanding this type of business. The business services which operate on a national or regional level have considerable freedom in locating their headquarters and are not tied down to raw materials or restricted by freight rates. They can locate practically anywhere if they find it an attractive and convenient place in which to live and work.

Chicago, as one example, is very prominent in this particular phase of business services. It ranks second in the nation for having headquarters offices of national commercial and industrial organizations. It has the nation's highest concentration of headquarters for chain stores, eighty-two labor headquarters, and countless political organizations. The majority of these are found in the CBD of Chicago because of its efficiency as an administrative center.[27]

The financial activities of business services are extremely important. In most large cities, one particular CBD area becomes specialized in this field, and the "financial district" results. Chicago is an illustration of this with its La Salle Street district, having banks whose total

---

[27] Chicago Central Business and Office Directory, Chicago: Winters Publishing Company, 1941, pp. 457-640.

resources, expressed as a percentage of the total banking resources in the city, amounted to 88.7 per cent in 1940.[28] Other financial activities listed in Chicago in 1940 were credit-rating agencies (73), auto loan companies (97), real estate loan companies (109), mortgage agencies (28), and numerous others.

Wholesaling Without Stocks.--This category covers all intermediaries handling sales transactions without maintaining stocks on the premises. While this includes brokers and commissions men, it is much broader. In many lines of wholesaling, such as coal and lumber, it is customary for the wholesaler to take ownership but not physical possession of the stock.

This service requires little separate comment since it can be grouped with business services so far as type of facility is concerned. Some establishments in this category merely handle transactions on a commission basis, as in the case of food brokers. These brokers are not linked in location to food handlers in their own city to the degree that might be expected, and they have a considerable amount of territory outside the city to cover in most cases.

The type of enterprise that assumes ownership but not physical possession of merchandise has special importance for the development of the CBD because this method

---

[28]L. J. Sheridan and Lloyd Drexler, From an unpublished MS for the Urban Land Institute, Chicago.

of enterprise avoids physical movement of goods in and out of the central district area.

Except for the personnel whose daily presence is necessary to these operations, relatively little pedestrian traffic is generated by these activities, most of the business being conducted by telephone or other communication media. Thus, their contribution to the daytime population of the CBD is only a fraction of those who have contact with it directly.

Still, this activity is very definitely a magnetizing factor. The magnitude of the ancillary staff necessary to the market functions in Chicago is suggested by the 1940 listing of 138 brokers and 419 investment and security offices. The market functions included the Board of Trade, The Chicago Mercantile Exchange, and the Chicago Stock Exchange.[29]

Modern office space which is convenient to the wholesale markets and also to means of efficient transportation to other regions, attracts and holds this significant type of activity.

Wholesaling With Stock and Manufacturing

Both of these activities tend to repel other types of activity. Both require large amounts of space for the storage and handling of goods, characteristically in the form of factories and warehouses. Because of their complementary

---

[29]Chicago Central Business Directory, op. cit.

activities they are often found together. They tend to locate on one side of the CBD in a location convenient to transportation. The area is characterized by the predominance of loft buildings, which are suitable for both the storage requirements of the wholesale function and the operation of light manufacturing establishments such as those engaged in printing, photo-engraving, and women's garment or men's wear production.

Wholesaling With Stock.--This category includes all of the lines of wholesaling maintaining stocks on the premises and selling to the trade out of that stock. Display rooms and storage are the facilities usually required.

Within our complicated framework for the distribution of goods, certain forces are at work that are having the effect of reducing the proportion of the CBD devoted to the wholesale trade. It might be said that the channels of distribution are shifting in such a way as to reduce the importance of wholesalers.[30] Many functions in which the wholesaler specializes are being taken over by manufacturers and groups of retailers. The increasing standardization is a major factor of this. The widespread use of grading and branding supported by nation wide advertising facilitates buying from samples or catalogues and encourages direct selling to retailers by manufacturing. Many chain store

---

[30]Ratcliff, op. cit., p. 137.

organizations are of sufficient size to assume all wholesale functions.

This does not, by any means, doom the wholesaler to extinction, for it is apparent that the effect upon the wholesale function of shifts in marketing channels has varied among lines of merchandise.

In location, convenience to transportation is very important. Where bulky and heavy goods are to be handled or where the volume of goods is so large that carload lots are dealt in, railway track service is highly desirable. The availability of truck transportation reduces railway importance where smaller volumes of goods and compact and easily handled merchandise are characteristic. Convenience to main transportation arteries is also advantageous for their buyers; ready access to public storage facilities is required by some business; and convenience to the local sources of supply is another consideration.

In general, wholesalers tend to locate as near as possible to the group they serve. In the marketing of style goods, convenience is of particular importance due to the necessary frequent contacts with retailers. Other wholesalers require considerable storage space because of the variety of goods stocked or bulk of the merchandise, and this often means they cannot compete for a central location. Wholesalers with a national market desire locations convenient to transportation terminals, hotels, and recreational

areas to best serve their clientele.

Location near other wholesalers in the same line is desirable where the market to be served is national or regional, and where shopping, comparison, and selection are important. Another advantage is the opportunity such locations afford in filling out orders when shortages occur within the stock.

Wholesalers find it less advantageous to seek each other's company when the market is a local one or when the product is bulky, with storage and selling associated; when the buyers do not visit the market, and when comparison is unimportant.

Although the wholesaling function continually changes, it is strongly anchored to the central district. The wholesale warehouse is a link in the whole system of transportation, storage, and order assembly which facilitates the flow of goods to the consumer, and the application of new technological advances to the mechanics of wholesaling may bring about a substantial change in its character and the CBD.

Manufacturing.--This includes all establishments engaged in the production of fabricated goods, ranging all the way from baking and printing to loft manufacturing and large factories.

The forces that led to a concentration of industry in the central district in the early stages of city development have shifted until manufacturing is no longer a typically

central area use. This type of activity is now associated with the routes of transportation, notably main highways, railroads and waterfronts. Recent industrial growth has been found in large part on the outskirts of cities where land is cheaper, taxes lower, congestion less, and plenty of space available for modern one-story plants and employee parking.

The types of manufacturing most often found in the CBD area, adjoining the retail and service districts, are the service industries with a local market and light industries requiring small space and little or no heavy machinery.[31] Since ground floor space is unnecessary, these activities are carried on in the upper floor of loft buildings in which both light manufacturing and wholesale uses may be found. Various service industries, such as printing, find that convenience to centrally located customers is important; while other manufacturing activities, such as garment making, find that proximity to local retailers and convenience for out of town buyers are important considerations. For practically all light industries, adequate facilities for truck transportation are important, and, for those establishments dealing with other than a local market, proximity to railroad stations is advantageous.

---

[31] Ratcliff, op. cit., p. 143.

Haig found that those industries tending to cling to CBD positions were characterized by some combination of the following factors:[32] (1) no specialized buildings were required and, therefore, obsolete commercial or residential buildings were suitable; (2) only a small ground area was needed per worker; (3) close contact with the market was desirable because of the time factor; (4) plants were generally organized and operated on a small scale; (5) the work was highly fluctuating in volume.

In contrast, it should be interesting to consider Haig's factors for industries not seeking a central location; these types should most definitely be excluded from CBD's. Those industries tending to seek outlying locations were characterized by some combination of these factors: (1) the plants were relatively large in size; (2) they required a relatively large ground area per worker; (3) specialized buildings were necessary; (4) they required large amounts of raw materials, fuel, or water; (5) they had serious problems of waste disposal or objectionable and nuisance features; (6) they did not require close contacts with the market; (7) and they required uninhibited transportation connections to main roads, railroads, and water.

Not all these listed features characterized either the central or the outlying locations by every type of

---

[32]Robert M. Haig, Major Economic Factors in Metropolitan Growth and Arrangement, New York: Regional Survey of New York and its Environs, vol. 1, 1927, p. 104.

industry that shared these respective locations. And in determining the location of some industries, one or two of the factors seemed more important than all the others combined.

Haig also observed that various specialized operations required in the manufacture of a single article may differ in location requirements. Thus, when pressure for intensive land utilization makes rentals exceedingly high in the center of the city, certain of these specialized operations may move to outlying locations whereas others will remain in or near the CBD. As an illustration, in newspaper production, the comics and feature sections, which are not highly perishable, may be printed at some distance from the CBD, but local news sheet printing and local advertising offices cling tenaciously to the central district. Also, in other industries, when size becomes large enough to allow for efficient spatial separation, each function, or bundle of functions, tends to seek that spatial location best adapted to its own needs.

Another consideration which helps to explain the location of certain types of industries in the CBD area is that of building cost and location.[33] For example, buildings that have become deteriorated or have been abandoned as the business center shifts, can sometimes be obtained at

---

[33]James A. Quinn, Human Ecology, New York: Prentice-Hall, Inc., 1950, p. 101.

low and bargain rentals by manufacturers. Especially those manufacturers that expand and contract seasonally, and that can use rather small space areas in one or several buildings during rush seasons, can obtain cheap rent in deteriorated areas. Thus, cheap building costs is a consideration that explains some manufacturing locations in the CBD.

Labor and transportation are also factors explaining locations of some industries in the CBD. Labor is generally mobile and the cost of transportation to and from the place of work is borne by the worker rather than the employer. Still, considerations of labor supply may influence the location of certain industries within the city. Those industries that are of a strongly seasonal nature need to locate close to a large elastic labor supply. When in the CBD, they are easily accessible to those great masses of urban workers who depend on public transit. Manufacturers can more easily increase their labor force when needed and can release workers during the slack season when in an accessible CBD location.

The Future of the Central Business District

The growth and development of the city and the CBD have been discussed, and the CBD functions, which this author believes to properly characterize the CBD area, have been isolated and analyzed. Reference has also been made

to the so called "decentralization" of the CBD activities and the growth of business areas in the suburbs and outlying districts of the city, which lead the businessman into considering the future status of the CBD.

The answers to this vital question of the CBD future have been many and varied; ranging from the claim of continued growth and greater prosperity to decline and complete disaster.

Some studies have been made which attempted more than theorizing in general terms; they have given detailed thought to an analysis of the CBD future. Alderson and Sessions have made such a study in Philadelphia wherein they analyzed the future space requirements for the Philadelphia central district.[34]

The Philadelphia conclusions substantiate the opinions that many people have had concerning the future growth and development of business areas, and in that respect its presentation here should be of more than slight value.

The central district estimates made by Alderson and Sessions had to be consistent with certain estimates for the city as a whole and the metropolitan area. The long range trends for the metropolitan area of Philadelphia were derived in turn from projections for the United States and consideration of the Philadelphia area as a segment of the

---

[34]Alderson and Sessions, Philadelphia Central District Study, Philadelphia: City Planning Commission, 1951.

national economy. The basis for estimates was very detailed in another direction; forecasts also being made for 221 separate groups. A third major refinement was that individual projections were made in each case for the number of establishments and the average amount of floor space occupied. In forecasting the number of establishments, economic factors such as the employment rate were taken into consideration. The forecast of the total space requirements was the product of the number of establishments and average floor space.

The forecasts will be presented with primary emphasis on the six basic activity groups mentioned in the previous section, and will be largely confined to the outlook for 1980 although the study covers the periods 1949-1960-1980. This simplification is possible because total space requirements remain nearly static between 1949-1960.

The total space demand predicted for 1980 is 148 million square feet, an increase of thirteen per cent over the 1949 figure of 131 million square feet.

Future Space Demand by Major Activity Groups

There is an increase projected into 1980 for each of these groups except for wholesaling with stocks and manufacturing. However, it's predicted that the space for the three goods-handling activities will remain about the same due to an increase in retailing; the exact figures quoted being sixty-seven million square feet in 1980 as compared with 67.7 million square feet in 1949.

The activities which are not involved in the handling of goods primarily generate the increase in demand. Of these, the greatest increase comes from consumer services, with business services second, and wholesaling with stocks as third. The space demand for non-goods-handling as a whole increases by approximately thirty per cent, and while they accounted for only forty-eight per cent of the total space requirements in 1949, they will account for fifty-seven per cent in 1980.

In retailing, the demand for space will not increase as quickly as retail sales. This is due to the growing tendency for the goods handling of large retail stores to be handled from warehouses located outside the CBD.

The change in demand is further accentuated if one contrasts manufacturing and wholesaling with stocks with all other uses, including retailing. In 1949, these two activities occupied about forty-three million square feet. In 1980, it is forecast that they will occupy only thirty-eight million, meaning a decrease of twelve per cent while the demand of other activities will be increasing by approximately twenty-five per cent.

The authors further contend that this will result in quite a different birds-eye view of the CBD in the future. Factories and warehouses will be less in evidence, having moved into other areas of the city; while other spaces such as office buildings, public buildings, retail stores, and

other kinds of shops will have increased their dominance. Much of this increased dominance is of the space demand character which can be accommodated on the upper floors of multiple-story buildings rather than requiring ground floor space.

Changes in the Number of Establishments

The authors point out that the forecast of space requirements is the product of separate forecasts of the number of establishments and the average space per establishment. Other than this use, each of the figures is important in itself in forecasting the need for specific kinds of space. The number of establishments will decline in all classes of non-goods-handling establishments. However, the decline is of such a minor nature for retailing that it might be said that the level remained about the same.

It is emphasized that this decline in manufacturing and wholesaling-with-stock applies only to the Philadelphia central district, and the majority of the establishments moving will resettle in other of the city's industrial areas. What is happening might be described as a reshuffling of manufacturing and wholesaling enterprise. Some trade and industrial establishments will move out because of such considerations as needing more and cheaper floor space or better transportation service. Others will move in because of the importance to them of the central district advantages of convenience and prestige.

Changes in Average Space Requirements

The average space requirements will increase in goods handling establishments while that of the non-goods-handling will decrease. These trends in average space requirements tend to somewhat offset the trends in number of establishments.

Looking at these trends of number and size together, several different kinds of situations appear. Retailing and manufacturing establishments will be fewer but larger, though the decrease in numbers in retailing is not material. Though business and consumer services increase in numbers, they will decrease in average space requirements. In wholesaling, those with stocks will be slightly fewer but larger, while those without stock will increase greatly in numbers with a very slight decrease in average space requirements.

These differences are explained in part by an inherent relationship between rate of growth and size. If units of any kind are increasing rapidly in numbers, the newer units will not have time to attain their full size. If the number of units remains static or decreases for a period, the individual units have a chance to become larger on the average. The authors draw a parallel to this situation in human populations. There is bound to be a high proportion of children compared to adults if there is a high birth rate, and during the period under consideration, the establishments offering business and consumer services constitute populations with high birth rates.

The Philadelphia study states that this predicted trend towards service and distribution activities for Philadelphia has been shown to be true in the picture of the entire national economy in a thorough analysis made by Colin Clark in his study of the U. S. and other leading nations. The fact that the population of the U. S. is steadily becoming more urban is widely recognized. What may not have been so evident is that the balance of activities within the range of urban life has been shifting steadily away from production towards distribution and services.

The Changing Pattern of Frontage Requirements

The Philadelphia study by Alderson and Sessions shows that, in 1940, the nonresidential establishments were using 374,213 lineal feet of frontage. A 5.6 per cent increase, or a total of 395,224 lineal feet, is forecast for 1980 in space required. A large part of the new space required will be space in office buildings and this is a major factor accounting for the difference.

Frontage requirements for retailing and consumer services are significantly different from other activity groups. The volume of business for retailing and consumer services in directly dependent on pedestrian and street traffic, while the frontage character is not so critical for other establishments. Retailing and consumer services were using fifty-five per cent of the total frontage in 1949, and by

1980 it is predicted that they will require sixty per cent of the total, or 236,762 lineal feet.

Conclusion

Thus, the authors point out, there is ample reason to conclude that the facilities offered by our cities need to be modified more rapidly if they are to accommodate the changing character of urban activities. One function of the public planning agencies may be that of facilitating this adjustment of supply and demand for space of a non-residential character.

Annotated Bibliography

1. Alderson and Sessions, Philadelphia Central District Study, Philadelphia: City Planning Commission, 1951. Report on the future space requirement of Philadelphia's central district. See especially chapter V.

2. Bartholomew, Harland, "Urban Land Uses," Harvard City Planning Studies, IV, Cambridge, Mass: Harvard University Press, 1932. Discusses land uses in various cities, gives breakdowns of land used in various activities, and draws comparisons of land use between the cities studied.

3. Breese, Gerald W., The Daytime Population of the Central Business District of Chicago, Chicago: Univ. of Chicago Press, 1949. Discusses functions and character of Chicago's CBD, and volume origin and destination of Chicago's CBD daytime population.

4. Gist, Noel P. and Halbert, L. A., Urban Society, third edition, New York: Thomas Crowell Co., 1950. Discusses location of cities, factors of urban growth, and ecology of the city. See especially chapters IV, V, VI, and VII.

5. Haig, Robert M., Major Economic Factors in Metropolitan Growth and Arrangement, New York: Regional Plan of New York and its Environs, 1927. Discusses speculations regarding the economic basis of urban concentration and the assignment of activities to areas in urban regions. See especially chapters I and II.

6. Johnson, Earl S., The National History of the CBD, With Reference to Chicago, unpublished Ph. D. dissertation, Dept. of Sociology, Univ. of Chicago, 1941. Discusses the growth and development of the Chicago CBD from original settlement up to the present.

7. Perry, Clarence, "The Neighborhood Unit, A Pattern for Planning Residential Developments," Neighborhood and Community Planning, New York: Regional Plan of New York and its Environs, Discusses location of business activities within the city. See especially chapter VI.

8. Quinn, James A., Human Ecology, New York: Prentice-Hall, Inc., 1950. Discusses the study of areas, location of specialized functions and areas, and the planning of urban areas. See especially chapters III, V, VI, and IX.

9. Ratcliff, Richard U., Urban Land Economics, New York: McGraw-Hill, 1949. Discusses the economics of urbanization, the demand for non-residential space, functions of urban land market, and city growth and structure. See especially chapters II, V, X, and XII.

CHAPTER II

DELIMITATION OF THE CENTRAL BUSINESS DISTRICT

One might well ask the reason for delineating the central business district (CBD) boundary. Any city dweller could very readily direct a stranger to the business district and inform him, in general terms, of the activities which take place within the area. This same citizen would have some idea as to the area covered by the CBD and just how far it extends in various directions. His criteria for judgment would probably be land use, and any non-residential activity close to the downtown center would be part of the CBD. His boundary line would probably be drawn at that point where, by his observance, the predominant use becomes residential rather than business. This simplified method also seems to be that which is predominantly used by planners and city officials in delimiting the CBD.

The major reason justifying a more exact delineation is that of attaining a better understanding of the city proper and, in particular, the CBD. There is no magic formula or arithmetic equation, thus far, whose application in a few moments time will result in a precise boundary--and it is probably best that this is the case. For in the resultant process of detailed analysis to arrive at a refined delineation, one must become intimately acquainted

with the CBD and determine the reasons for the existence of the particular district with which one is concerned. As the reasons for its existence filter through the mind, one becomes familiar with the historical growth of this area, its past and present relationship with outside areas, what lies ahead in the probable future, and other pertinent aspects of the CBD and the city. The CBD is a very complex organism and a complete understanding is necessarily a long and tedious undertaking. But, once this has been accomplished, the possibilities of attaining a better city and more thoroughly understanding its problems, more than compensate for the time and energy spent in research.

In addition to giving a thorough knowledge of the CBD and its relationship to other areas, the resulting delimitation affords planners a definite area with which they can work and use for statistical analysis.

The city taxing policy towards the CBD has often proved of questionable value. A knowledge of the character and importance of this area to the whole city, gained through the CBD analysis, might lead city officials to think twice before unnecessarily bleeding the heart of the city to support other areas which are less productive in amount of taxes paid. The boundary line, in this case, would delineate that area within which more than slight attention should be given to taxing policies.

The delimitation is further justified in that it

would give the businessmen of the CBD an opportunity to recognize and know just who are their "brothers". Chamber of Commerce organizations, downtown business associations, and other business groups could organize along definite and less arbitrary lines to work towards the solution of their common problems and build for a healthier CBD, which would obviously lead to a healthier overall city.

There, undoubtedly, are other reasons justifying a search for the proper CBD boundary, but these should suffice for the present purposes.

This chapter, in discussing delimitation of the CBD, will go through the steps which are necessary to gain the objective. These criteria cannot be applied, step by step, to any size CBD with identical results, but the general outline of procedure should give valuable leads to any city desiring to determine its proper CBD area.

The first portion of this chapter will be devoted to determination of the CBD functions, their nature, and their relationship to outside areas. These matters have been discussed in some detail in the previous chapter, but they will be summarized here in order to show more definitely the relationship they bear to other delimitation criteria.

The second part will deal with the theoretical spatial patterns of the CBD, and the influence brought to bear on these patterns by topography, street design, and natural and man-made barriers.

Within the CBD there are basic indications which aid in determining the boundaries, and these will be discussed in the third portion of the chapter.

Finally, these indications must be resolved into the CBD boundary. This will be discussed in the concluding portion of this chapter.

Functions of the Central Business District

The first substantial developments of American cities were made at locations most advantageous to trade and commerce. Often, this was at the intersection of two roads, along a river or seacoast, or at some point favorable to mining. Regardless of the reasons for establishing a community, the primary focus of internal activities and the major contact with a tributary area is always found in the CBD.

The activities carried on within the CBD have been broken down into three functional combinations. These groups are Retailing and Consumer Services, Wholesaling Without Stocks and Business Services, and Wholesaling With Stock and Manufacturing. Some authors have listed the CBD functions as social, cultural, service, political, trade, and administrative; while others have combined these into fewer groupings or broken them down to form additional functions. The combinations used in this thesis do not subtract from what are usually listed as CBD functions,

but rather combine the activities into groups which have a common denominator or characteristics peculiar only to them.

The process by which these functions settle in the CBD seems to be determined in part by tradition, convenience, accessibility, prestige, and economics. These qualities are all self explanatory except, possibly, economics. This means that, in any given economy, only those activities locate in the CBD whose books, so to speak, can still show a profit after the charges for site rent have been subtracted from the gains which accrue to them by virtue of their location in this strategic area.

The functions of non-economic character locate in the CBD because this position permits them to perform their special role in a more efficient manner than any other location in the entire community. For both economic and non-economic functions, this area has been the place where each could most efficiently exercise its greatest dominance, i.e., perform to the maximum its proper activity.

The dominance of the area is, in part, a function of the fact that the CBD is also the ecological center of the city--the position of greatest economic activity. This is true because here is that spatial position within the city structure where, due to the time-cost transportation relations which it bears to all sections of the market area, a complex of economic institutions is able to operate with the greatest efficiency.

Regardless of the city population or the size of the CBD, and, notwithstanding the fact that the CBD might not be in the geographic center of the community, this area is always the ecological center of the city.

This means that in studying the CBD, one can always begin with at least two known factors: that it is the ecological center and there are certain proper functions which characterize the area. The next step would entail study-these functions in order to ascertain their character and relationship in the particular CBD being considered. This would involve determining the degree to which such functions are found in the CBD, what function is predominant, if any, and what makes it so. This latter determination will involve a study of the relationship of the CBD functions to outside areas.

It is often found that the character of the CBD functions has been determined by the city's function; and the function of the city has, in turn, been determined by its location. That is to say, that a certain area has developed into a city because its location has facilitated some particular function. An example of this would be a resort town. Its location in an area having certain climatic or other favorable geographical conditions has allowed it to prosper in the pursuit of this activity. But, this function is possible only because of the advantages this particular location affords.

Within the resort town, one would find that the predominant CBD activities are those necessarily facilitating the performance of the particular services required by a resort town; i.e., hotels, night clubs, recreation, etc. There would be little space demand for office or industrial activities.

At the other extreme are office cities whose major functions are of an administrative or financial character. They have developed as such because of their communication, geographical, or other necessary advantages. In such cities, one would find a heavy demand for office space in particular.

Cities with transportation, location, and communication advantages are often market centers, and a resulting space demand in the CBD area would be for offices and wholesaling facilities.

Most cities have a mixture of these activities in their CBD, and the degree to which any one or several occur is determined by its particular situation. The city of 25,000 population will probably have a smattering of many activities, scattered throughout the CBD with little definite functional pattern being apparent. A city of 500,000 population will contain all the proper CBD functions to some extent and, in addition, will show evidence of the grouping of like functions to a considerable degree. Many cities are famous in this respect for their financial, market, or retail districts.

Considerable headway has been made in delimiting the CBD area when the functions have been isolated and thoroughly studied in relation to each other and to external activities.

Patterns of the Central Business District

American cities have been the subject of numerous studies of the distributive arrangement of the activities within the city. When the results of several such studies are compared, it becomes apparent that the individual structures of the cities have certain basic associations in common. These basic associations that are repeated in various cities and the resulting patterns they form have been given special attention and reported by authors in terms of general types and tendencies.[1]

These studies, in turn, become valuable guideposts for a more detailed research into the structure of individual activity areas of the city; and, in this section, the activity area studied will be the CBD.

The actual shape of the CBD varies considerably from city to city, but these variations are the result of local conditions rather than there being a multitude of basic

---

[1]Chauncy C. Harris and Edward L. Ullman, "The Nature of Cities," Annals of the American Academy of Political and Social Science, vol. 242, 1945, pp. 12-17.

patterns. Because of this, it is felt that presentation of the basic patterns and conditions which alter them will be valuable in gaining better understanding of the CBD, and facilitate the purpose of this thesis.

The Circular Pattern

Burgess has outlined what he refers to as the concentric zone theory of growth, in which he suggests that in the absence of man-made obstacles or topographical barriers, the geometric pattern is a circle.[2] Burgess evidently bases his theory upon the measurement of relative distances from the center of the circle. Each position on the circumference of the circle is as close to the center as any other point that is similarly situated, and as the commercial activities desiring a CBD location move into the area and becomes established, the CBD assumes a circular shape around the central focus. It should be mentioned that this theory evidently completely overlooks the importance of time in traveling from one point to another, and developing theoretical patterns or shapes on the basis of distance alone seems to be of questionable value.

The Star Pattern

It would be impossible, however, to move goods and people over the shortest air line routes to and from the CBD

---

[2] Ernest W. Burgess, "The Growth of the City," The City, edited by Robert E. Park, Ernest W. Burgess, and Roderick D. McKenzie, Chicago: Univ. of Chicago Press, 1925, pp. 47-62.

because this would leave no land for commercial activity since it would all be used for vehicular and pedestrian traffic arteries. The concentric zone theory in its application to the CBD area reaches its nearest practicability when there are several major traffic arteries of the radial type. With the radial street pattern, the business district area reaches its outward extent along each of the radials, and consequent inward sagging occurs in the peripheral areas between the radials. As the number of radial thoroughfares decreases, the peripheral delineation becomes less circular and the sagging areas become more extreme. Six equally spaced radials meeting at a central point would thus form a star-like pattern very similar to the circular shape, differing only in the number of radial streets assumed.

The Diamond Pattern

The majority of American cities have developed under the gridiron street pattern rather than the radial street system. Cities which have imposed radial thoroughfares on their original grid pattern to improve the traffic flow usually terminate the radials at the edge of the CBD, with the latter retaining its gridiron system of streets. However, even in this case two of the streets might be considered radial inasmuch as they intersect at the center of the district. The important difference from other types is that the gridiron system offers a greater choice of alternate shortest distance routes. Thus, assuming a

gridiron network of streets in the CBD and the desirability of a central location, a diamond pattern is obtained by measuring an equal distance along all the routes of travel from the business district central point; the corners of the diamond lying on the four corners (east, west, north, and south) of the two direct route streets which intersect at the CBD center.

The Crossroads Pattern

By reducing the star or diamond shape to the simplest form, a crossroads or village square type pattern is obtained. This pattern is of the type found in many small American towns or villages where all the stores and commercial activity are located where two main roads intersect.

Variations from Theoretical Patterns

These theoretical patterns have been presented as idealized, spatial arrangements of CBD activities under certain basic assumptions of a homogeneous land base, unity and regularity of a grid or radial transportation system with travel routes which have equal qualities in facilitating the traffic flow, recognition by CBD activities of the desirability of a central location with respect to their potential customers, and the symmetrical growth of the CBD unrestricted by man-made barriers.

George Hartmen, in a study of CBD land use maps of forty American cities, found a multitude of local conditions

which impose modification upon the theoretical patterns, and asymmetrical rather than symmetrical growth resulted from local conditions within each city.[3]

Physical irregularities of the land have great influence on the CBD pattern even though modern technology can make a molehill out of a mountain--for a price. Grades which are level or gently sloping are preferred to those causing customers to climb steep grades. Costs of building construction also vary considerably according to the site conditions, with the result that certain sites are preferred to others in this respect. Low areas next to water courses are usually undesirable for commercial structures because of drainage problems. Thus, rivers, lakes, underlying surface conditions, and abrupt variations in topography have extremely important effects upon the delineation of CBD areas.

Hartman found several variations due to these local physical conditions.[4] In Johnstown, Pennsylvania, a level CBD area immediately surrounded by physical barriers to outward expansion tends to compress the commercial area, resulting in a more intensive and vertical use of the land. In Fitchburg, Massachusetts, on the other hand, it was found that a steep, narrow valley has the effect of weakening

---

[3]George W. Hartman, "The Central Business District--A Study in Urban Geography," Economic Geography, vol. 26, no. 4, October, 1950, pp. 237-244.

[4]Ibid., p. 241.

centralization by forcing inordinate elongation of the commercial district. If competition for space in the CBD becomes acute in the face of a physical barrier, an interrupted district may develop such as in Little Rock, Arkansas, and Waterloo, Iowa, where the CBD interruption is a river barrier.

The physical site also affects the CBD pattern by influencing street layout and the volume and direction of traffic flow. Changes in the method of orienting the regular system of streets and blocks is a major influence in distorting the tendency for symmetrical CBD growth. This was found to be the case in Reading, Pennsylvania, and Savannah, Georgia, where irregularities in the length, direction, and width of streets coupled with the size and shape of the blocks was particularly effective in influencing the outline of the CBD.

Homer Hoyt has written that cities have a tendency to expand outward along certain thoroughfares, or axes, that offer the best travel facilities, as well as by concentric growth around a central point.[5] The linear arrangements that result often occur even in the case of centralized commercial activities. This seems to be especially true when the flow of traffic is concentrated along such routes because of convenient location.

---

[5]Homer Hoyt, Structure and Growth of Residential Areas In American Cities, Washington: Federal Housing Administration, 1939, p. 96.

Particular thoroughfares may become dominant and create unequal traffic flow for several reasons; such as irregularities in the physical site and in the platting of streets and blocks, improperly designed subdivisions in which dead-ends, jogs, and discontinuities appear in various streets, the resurfacing, widening, or other improvement of certain existing streets leading to and from the CBD, the routing of transit on certain streets, the irregular distribution of the population or potential customers within the city and hinterland, and the uneven distribution of parking facilities. Local conditions in this category produce configurational distortions of central districts in varying degrees; mainly because the time spent in travel from one place to another becomes more important than the distance involved in the travel.

In some cases the center of commercial activities may not be a central point or intersection, but may become elongated in one direction; such as a thoroughfare becoming dominant over other streets with the result that commercial enterprises choose sites along it in a linear or ribbon-like fashion. This elongation of the CBD appears parallel to the thoroughfare and flattening occurs at right angles to the street. The central districts of Reading, Pennsylvania, and Vancouver, Washington, are examples of a tendency toward single street dominance; while Savannah, Georgia, has

a central district represented by a linear development which parallels lake and water transportation facilities.[6]

Cities which have developed at railway transportation stops often have lineal CBD areas, and commercial districts in resort towns along lakes and ocean fronts often develop in similar fashion to serve the needs that are peculiar to their special type of customer.

Railroads in the CBD area may become a barrier to expansion, or sometimes an interruption of the business district will occur if the barrier is successfully bridged. In Raleigh, North Carolina, and Santa Fe, New Mexico, it was found that parks, schools, and governmental buildings next to the business district blocked the district from expanding in that direction.

The demand for absolute central position with respect to all activities may not be extremely strong for certain types of activity. Office, managerial, and financial sections often appear on one side of the CBD in our larger cities. Other types of activity may have the desire for centralized position offset by the desire to move out in the direction of the general concentration of employers or the greatest number of customers, such as the retail stores selling specialized high-cost articles to upper-income families.

---

[6]Hartman, op. cit., p. 243.

Thus, each CBD has a spatial shape which appears to be unique in detail, and no other specific district appears quite like it. Definite geometric patterns are discernible, though, in spite of the great complexity of shapes; and this is due to the fact that centralized activities by their very nature operate primarily under the same basic principle of choosing a central position in relation to all relevant internal and external activities of the city. The multiplicity of the actual shapes of the CBD results from local conditions which are peculiar in detail only to themselves, and these conditions produce the variations from the idealized pattern.[7]

Indications of the Central Business District Boundary

Although there is no single quality or characteristic sufficient in itself to make a proper determination of the CBD boundary, there are several qualities and characteristics, when studied together, which give very definite clues leading to the establishment of a justifiable delimitation.

These indications are land use, density, rental charges, functional areas, pedestrian traffic, transit routings, parking facilities, and time-cost transportation considerations. All can be mapped, and presentation by a series of overlays, combined with text, would facilitate the study.

---

[7] Hartman, op. cit., p. 244.

Selecting the Area for Study

Considerable study should be given to the land use maps of the central district before a definite study area is selected. If no land use data are available, they should be compiled as the first step in this process of mapping.

One method of choosing the study area from the land-use data would be through beginning at the most intensive use in the downtown district and extending the study area outward in all directions until the predominant land use becomes residential. Or one could do it directly opposite by beginning at the fringe areas where residential properties are the dominant use and continue inward.

The resulting study map will, in many cases, present a picture of a relatively tight central core with ribbon like developments extending outward along major thoroughfares, or perimeter bulges caused by the extreme location of some special district such as governmental or industrial use.

To be completely unbiased in the beginning, one would have to include all the contiguous areas to the point of residential dominance. However, cities which have made previous studies in the CBD may find ample reason for not including all contiguous non-residential districts in their study area. When such reasons can be justified, there is no apparent reason why the study area should not be reduced.

The base map should be prepared after the study area has been determined. It should contain only those features which are considered basic to each of the indications to be mapped. In most cases this will involve showing streets, rivers, and railroads. Some studies might desire the inclusion of building outlines where a more detailed study is desirable.

There are two more maps which should be considered in this preliminary series, and both will prove of value in understanding and facilitating the remainder of the studies. The first would consist of a base map to which topographic contours have been added. This, along with the man-made and natural features already shown on the base map, might be used later to explain the patterns of various land uses and, in some cases, the existence of certain portions of the CBD boundary.

The second map is a base map on which the study area has been broken down into a series of numbered grids. This would facilitate quick identification of certain areas and also tend to simplify material in the text accompanying other studies.

One is ready to begin the overlays for the various boundary indications after these maps have been prepared.

Density

The mapping of this indication would be in two parts. The first map would show the density of floor space for all

non-residential uses by establishing the ratio of total floor space to total ground area in each block. These individual uses would include only the six basic land use types previously mentioned: Retailing, Consumer Services, Business Services, Wholesaling Without Stock, Wholesaling With Stock, and Manufacturing. The map of floor-space density for all non-residential uses would give one a picture of the dominant areas in reference to density. This would point out the highest buildings and the most intensely built-up areas in the CBD. The second group of density maps would show the relative dominance of each basic land use type in each area and point out its specific zone of concentration.

This latter group of maps could be used in another respect to provide revealing information. If figures of space usage for the six basic land use types were available for the entire city, one could establish the percentage of floor space for each use that is found within the CBD. This would show the relative space importance of the CBD for each activity.

The importance of CBD economic activities in relation to those economic activities outside its area could be established by eliciting sales figures for the six land uses. Using the two characteristics together, a space-sales relationship in comparing the virtues of CBD locations to those outside its boundaries. This information could be refined further, getting customer purchasing power, etc., if this is deemed desirable.

Functional Areas

This map would follow naturally from the density overlays just completed, and would show the areas dominated by the individual functional combinations: Retailing and Consumer Services, Business Services and Wholesaling Without Stock, and Wholesaling with Stock and Manufacturing. It will probably be found that one of the three functional combinations will account for at least fifty per cent of the total floor space in most CBD blocks.

When these newly delimited areas are compared with the density maps, one will be able to discover the characteristics of each functional combination in regards to type of building used and the density of the activities in each functional group.

Rental Charges

This map would show the front-foot rental charges for the entire study area.

Rent charges have been used by some cities in delimiting the CBD area. Although this author feels it is insufficient in itself to justify a proper delimitation, it can still be used to substantiate the other material. The steps used in this method begin with selecting the highest rental area in the city; this will be the one hundred per cent area of the CBD. All other land uses are then expressed in a percentage of the one hundred per cent area. Accordingly, some distance from the one hundred per cent use or area will

be the seventy per cent to eighty per cent district. As an illustration, one might find that the hundred per cent district was characterized by department stores or chain stores selling women's wear, and that the seventy to eighty per cent district primarily contained stores dealing in men's wear.

These relationship ideally would be natural, inasmuch as the location of one business with reference to another is theoretically determined by the respective rentals which each type of business can pay. As the rentals decline from the hundred per cent district, the boundary of the CBD is that point at which rentals become so low that a similar rental would be paid for the same facility regardless of where it may be located in the city. Another way of stating the same thing would be that the limit of the CBD is that point at which there is no advantage to a business to be located in close proximity to others. This, of course does not take into account various non-economic uses which are an integral part of the CBD, nor does it cover the "accidents" of CBD land-use location.

Three indications have now been studied: density, functional areas, and rentals. Combined study of these will reveal much valuable information. The rental charge map will show these values for all street frontage of the study area. Relating this to the functional areas will show which activities are using the highest-priced land.

While the density map will probably show that there are several blocks of comparable density, and the functional area map will point out which of their sub-districts have these like qualities, the most important information is not secured until the rental data are imposed. This will show that even though some areas are alike in respect to density, they all cannot use their land to the same advantage. The land rents point out the activities which use their space to the greater advantage, and the ones paying the highest rents, naturally would have the choice locations.

Pedestrian Traffic

The map of pedestrian traffic would show, essentially, the volume counts of the study area. It would serve to enforce the dominance of certain areas already designated, to a certain extent, by the rental charge map.

The areas having the highest pedestrian volumes would also have those functions that require greatest accessibility and attraction for pedestrians. This is quite evident since those activities which depend on large volumes of customers must be in the most accessible location if they are to properly perform their functions.

If this study were carried a little further by taking volume counts of the pedestrians visiting various establishments, it probably would be shown that the higher percentage of the destinations were Retailing and Consumer Services. However, many establishments of this character use only

ground floor space, and the upper floors might well contain offices for Business Services and Wholesalers Without Stock. The latter activities are not necessarily restricted to upper floors, and it has been shown they are able to and will compete for the most desirable and accessible parcels of land because of prestige and convenience desires. Such ideal locations definitely are not necessary for the performance of their function.

Thus, high pedestrian volumes do not necessarily reflect that all activities within such an area are of the type dependent upon heavy pedestrian traffic, but it would indicate that the majority of activities, or those of the greatest magnetizing quality, which do cater to pedestrians, are concentrated in this area.

Transit

The transit map would show the routes covered by mass transit and the frequency of service. This would tend to substantiate previous data which have shown that certain CBD areas are more dominant than others with respect to the indications that are being studied.

Transit is basically an effect rather than a cause of the CBD. However, neither could exist to its present extent without the services of the other. The CBD creates the demand for transit because the nature of its activities is such that great numbers of people desire transportation to, from, and within the area. By the same token, many of the

CBD activities are of such a nature that they can function properly only because of the great volume of people that transit, and only transit, can move to and from their establishments.

Although the CBD activities created the necessity for transit service, it does not follow that the new creation of any CBD type activity, in itself, will command transit service which necessitates the extension of present lines, unless such extension will prove profitable for the transit company. Since new establishments rarely have this ability, those activities that consider transit service important, try to find locations which already are on established transit routes. As a result of this, locations along the lines of mass transit have an added value because of their proximity to such service. The exact nature of this service, as to frequency, fare, etc., also are considerations influencing the property values and rents.

Parking Facilities

This map would show the location and capacity of parking facilities. The parking fee will also be an important consideration in many cases.

The pattern of parking facilities often tend to outline certain areas of the CBD. Their exact location will be determined by the need of such facilities and their ability to compete with other land uses for CBD sites. Their capacity and fee charge will be determined by the factors

of supply and demand; and the type and extent of demand will be determined by the activities within its zone of influence.

The extent to which parking facilities can compete with other land uses for desired locations cannot be defined precisely. Often it will vary, as with other CBD establishments, with particular type of facility, the need for such a facility, or the operational methods and efficiency of its management. The land rent and value map should show how well certain of these facilities can compete with other uses in securing the most advantageous sites.

It has been shown that parking facilities cannot compete with the highest land uses, but, since parking service is necessary for these higher uses, they tend to locate in close proximity. As general rule, the closer such facilities are to the establishments requiring their service, the greater will be the demand for parking space and the more they can charge.

The type of parking demand, short-time or all day, in a facility is indicative of the type functions which are in close proximity. Retailing and Consumer Services mainly generate a short-time parking demand, while the other two functional combinations tend to generate an all day parking demand. While a short-time parker will walk only three or four blocks at the most from parking to destination, the all day parker will tend to walk a few blocks farther. Thus,

it would appear that Retail and Consumer Service areas would be closely ringed by parking facilities while the other functional areas would not show parking terminals quite as concentrated nor as near-by.

Time and Cost Considerations

The relationship of the CBD activities in terms of time and cost are useful indicators. The locations of various activities should reflect these factors since each is concerned with securing a location which will give it the maximum advantage in the time and cost movement of goods and people.

The main concern for Retailing and Consumer Services is with the movement of people. Goods must also be moved in a minor degree, but the most important factor in the performance of their function is their accessibility to large numbers of people. The large retail stores, to a great extent, have broken down their packet of functions and relegated the movement of goods to warehouses outside the CBD.

The distance that a shopper will walk, especially with packages, to do comparison shopping or make additional purchases is limited. The actual distance that one will travel by foot will depend on the individual and his shopping incentive. Some studies indicate this distance usually will not exceed four blocks.

The most centralized establishments have a competitive advantage, especially when their trade is dependent upon

pedestrian traffic. Thus, one might take the highest and most intensive use in this functional area, or the point of heaviest pedestrian traffic, and delineate a time or block boundary which would be indicative of the area in which most pedestrian shoppers would tend to concentrate their buying.

The movement of people by transit should also be considered, especially in this functional grouping. The time necessary for a shopper to travel from one desired area to another, and the charge for such travel, will tend to increase or decrease the accessibility and desirability advantages of CBD areas. This might be illustrated by assuming two shopping areas of like character, equidistant from a group of customers, and served by the same quality of transit service. If the fare to one shopping area is ten cents and only five cents to the other, the latter will have an advantage due to the lower cost of transportation. However, if the transit line charging ten cents gave services twice as frequently as the other line, the advantages of the shopping area served by five-cent transit would be reduced due to the time advantage of its competitor. The condition of vehicles, attitude of drivers, and other personal considerations influence the advantages or disadvantages of various areas served by transit.

The cost and time considerations in the movement of goods and people is the least important for Business Services and Wholesalers without Stocks. Accessibility and

convenience for employees and business contacts must be considered, but communication facilities are probably their most important considerations.

The movement of goods is of major importance to the Wholesalers With Stock and Manufacturers. Accessibility and convenience to employees and buyers are considerations, but their economic abilities and space needs are such that they cannot compete for locations having the higher degrees of advantages. The proper performance of these activities is dependent upon the time and cost factors in the transportation of goods, and they tend to locate in areas that can be most readily served by the transportation services.

Thus, the time and cost of transportation in the movement of goods is most important to the Wholesalers with Stock and Manufacturers; the movement of people is most important to the Retail and Consumer Services; and the movement of either is of least importance to the Wholesalers Without Stock and the Business Services. The advantages of the functional areas depends upon the degree of efficiency with which each receives these highly important services.

Final Determination of the Boundary

Reference will be made in this section to certain "values" of the indications, discussed in the preceeding section. Each indication had definite characteristics and the extent of these characteristics indicates the "value"

of an area. As an example, in considering the density indication, if an area had a high relative density, its value for this indication would be high. Thus, in all the indications, each area has a relative value. The extent to which the characteristics of each indication are necessary for the various activities and functional areas is not the same for all activities. In this respect, a high value of the pedestrian traffic indication would be very important to a retail store, while of relatively little importance to the wholesalers with stock.

The CBD areas which maintain the highest values of all the necessary indications are definitely the most important areas in the CBD. The individual activities of the three functional groups which are located within their functional area should receive higher consideration than those outside their proper functional area. Within the functional area, those activities which reflect the highest values of all the mapped indications should receive the highest consideration of all. This would be justified because each indication reflects the advantages which are necessary to each activity, and those which reflect the highest degree of advantage would be the uses most desirable in the CBD.

In some portions of the CBD uses maintaining a high value level may halt abruptly because of a river, lake, railroad, or other barrier. When these barriers are not

overcome and the CBD uses continued, it is proper to place a boundary line at such points. In other areas, concentrated and high value CBD uses may cease abruptly and residential use begin. A boundary line also can be drawn in this case.

It is the boundary justification in other areas which presents the difficulty. Boundaries in these areas will usually be arbitrary to a certain degree, but the extent of this arbitrariness can be reduced decisively through the application of all the data thus far obtained.

As the indication values of the activities recede, the value of these activities to the CBD also become less. The establishment of a boundary in such areas can only come after practically each block and its activities have received individual study. This will be time consuming, but the process for judging each activity would contain essentially the same basic group of decisions which would have to be made.

First, one would have to establish a point at which the activities are of such a nature that those on one side are definitely a part of the CBD, while those on the other side are questionable. The questionable areas then would be considered individually, thorough study being given to the characteristics necessary for the proper functioning of this type of land use activity and its relation to the indications.

In this respect, a retail use which is out of its functional area, on low-priced land with a low density, unavailable to groups of pedestrians, and not served by transit would immediately be listed as questionable because of the low value it receives from the indications. This is plausible because a retail use in this location is not receiving the advantages which make for a profitable CBD enterprise. Further examination would probably show that a use of this type could operate just as well almost any place in the city.

One should continually keep in mind, throughout this process, that there are only certain economic and non-economic establishments which can be located properly in the CBD. The CBD is the ecological center of the city or metropolitan area, and often is geographically centered in relation to outside areas. This means that the CBD can offer great advantages to the activities locating within its boundaries. But, only those activities which will enhance and improve the city whole should be allowed to use this precious CBD land, for along with the freedom of use of these most advantageous sites goes the responsibility for maintaining high standards. The natural market and other influences are at work to uphold these standards, but accidents continually happen which are adverse to the general health of the CBD. These adverse activities always prevent the CBD from operating at its optimum capacity and should be removed whenever possible.

Annotated Bibliography

1. Harris, Chauncy C. and Edward L. Ullman, "The Nature of Cities," Annals of the American Academy of Political and Social Science, vol. 242, 1945, pp. 7-11. Discusses the activity patterns of cities in terms of general types and tendencies.

2. Burgess, Ernest W., "The Growth of the City," The City, edited by Robert E. Park, Ernest Burgess, and Roderick D. McKenzie, Chicago: Univ. of Chicago Press, 1925. See especially pp. 47-62. Discusses the concentric zone theory of city growth.

3. Hartman, George W., "The Central Business District--A Study in Urban Geography," Economic Geography, vol. 26, no. 4, October, 1950. See especially pp. 237-244. Discusses theoretical CBD patterns in relation to existing CBD patterns of forty American cities.

CHAPTER III

DELIMITATION OF THE ATLANTA CENTRAL BUSINESS DISTRICT

This chapter will be concerned with the delimitation of the Atlanta CBD, based upon theory and data presented in the two previous chapters.

In order to gain a general background knowledge of Atlanta prior to considering actual CBD delimitation, the first section in this chapter will deal with the physical base, regional and metropolitan economy, and the general characteristics of Atlanta's downtown business area.

The indications of Atlanta's CBD boundary, presented through maps and text, will be discussed in the next section; and the final portion of the chapter will deal with resolving the indications into the final boundary.

Introduction to the Study of Atlanta

Atlanta's Physical Base[1]

Atlanta is located on the Piedmont Plateau, a belt which lies inland from the Atlantic and Gulf Coastal Plains and runs north from Alabama to above New York city. This plateau lies approximately 1,000 feet above sea level and is flanked on its inland borders by the Appalachian mountains.

---

[1]Metropolitan Planning Commission, Up Ahead, Atlanta: Metropolitan Planning Commission, 1952, pp. 12-15.

Atlanta is one of the few cities in the world located on a water divide. It is on the crest of a ridge which divides drainage waters between the Gulf of Mexico and the Atlantic Ocean. Other urban areas of Atlanta's size have usually developed on the shores of lakes and oceans, or along navigable rivers.

There are two points that should be made about the site conditions of Atlanta. First, large urban concentrations at such sites are possible only on the basis of technology and not as a result of natural factors. Such cities depend upon transportation to give their location strategic importance, and their future depends upon further improvement of transportation facilities to continue their advantage over other areas. Second, they are particularly vulnerable to a lack of water. If these cities are to grow, they must be able to develop a water supply capable of supporting their continued growth.

The physical characteristics of the land have played a major part in Atlanta's development, and its understructure and topography favor a healthy future growth. The most important physical characteristic is possibly the ridge structure of the land. It was the confluence of three main ridges from the northwest, southwest, and east that fixed the exact site of the city. On these three ridges were located the first railroads, and later railroads were built on lesser ridges or major valleys to connect at the central point.

This ridge structure has influenced the kind of community that has developed. Atlanta and its suburbs have grown on ridge-crest positions, and ridge lines have been used as the routes of major streets, rail lines, and highways.

Several creeks and streams flow through the valleys of this area, draining into the Chattahoochee River on the west, and the Flint and South Rivers on the south and southeast.

The variety of subsurface conditions is favorable to construction work, particularly the building of large structures. An unusual characteristic of the understructure is that Atlanta's ridges often contain little or no resistant rock materials, most of the bed rock exposures being along stream courses. The common situation would find ridges of rock and the stream valleys full of eroded soil.

The openness of land in all directions is also important there being no major physical barriers on any side. To the west, the Chattahoochee River flows in a relatively narrow and deep valley that can be spanned without difficulty at most points. The only mountains are small and not close to the area of urban growth.

The Regional Economy[2]

Atlanta is the center, economically and geographically,

---

[2]Metropolitan Planning Commission, Economic Supplement to the Regional Land Use Plan, Atlanta: Metropolitan Planning Commission, 1952, pp. 1-18.

of the Southeastern region of the United States. The economy of Atlanta is so closely bound to that of the region that a few words concerning the regional economy, at this point, may lead to a better understanding of Atlanta's economy.

Since the depression of the early thirties, the Southeast has been moving steadily toward a stronger and more diversified economy. The region has been growing progressively more important in relation to the total country in those factors that either make or reflect a well-balanced economy.

The population of the region has remained at about fourteen per cent of the national total. The Southeast's share is less in income payments, retail sales, and wholesale sales than its share of population. However, the region's ratios in these items has been rising while the population ratio has remained relatively stable.

Farm income is the only one of the economic measures in which the Southeast has a larger share of the national total than its population ratio. The region's share of crop income, however, has been decreasing, partly because of the shift toward more livestock.

The region's economic growth during the past twenty years would seem to indicate that the pattern is set for the continued development of the area. The trend has been toward a decrease in agricultural dependence and an increase

in manufacturing. Within manufacturing and agriculture there has been a shift toward greater diversification.

The Atlanta Economy[3]

Atlanta has taken advantage of its location in the geographic center of the Southeast, and is recognized today as the region's financial and commercial center.

Atlanta is the largest metropolitan area in the Southeast, and, according to the 1950 census figures, ranks twenty-third in the United States in metropolitan area population.

More goods are sold in Atlanta than in any other city in the Southeast region, according to the 1950 Census of Business. Atlanta sells fourteen per cent more retail goods than its closest competitor, Miami, and has eleven per cent more wholesale sales than Memphis, its closest competitor in this field. Although Atlanta leads the Southeast in total wholesale volume, it falls behind Memphis in sales by merchant wholesalers and by agents and brokers.

In sales by factory branches, Atlanta is in the leading position as a regional distribution center for national manufacturers. Charlotte, with the region's second largest factory branch sales, did less than half as much business. More than one half of Atlanta's total wholesale sales were made by branch offices.

---

[3] Ibid, pp. 18-29

In manufacturing, Atlanta is slightly outranked by Birmingham, which is primarily an industrial city.

Atlanta is the financial center of the entire region, being thirty per cent above its nearest competitors in bank debts and deposits. The Sixth Federal Reserve District, with headquarters in Atlanta, serves the major portion of the Southeastern region.

Atlanta ranks high in communication. It is the largest telephone center in the South and one of the world's largest switching centers. Atlanta is the headquarters for Southern Bell Telephone and Telegraph, and is the southeastern headquarters for American Telephone and Telegraph Company. The city ranks third in the U. S. in number of telegraph messages handled, being the only city in the region which is equipped for automatic switching of telegraph messages, and it serves as the relay center for the whole region. While no other regional city has more than fifty circuits to offices, Atlanta has 353. Telegraph revenues in Atlanta are approximately three times those in Miami, the second ranking city in the region. Atlanta ranks tenth in the U. S. in volume of air mail dispatched and nineteenth in postal receipts. In these two respects, Atlanta was almost double the second-ranking Southeastern city.

Atlanta was created as a railroad center and has become the focal point for all types of transportation in

the Southeast. Today, it is the leading center in the region in railway traffic and trucking. In air transportation, it is second to Miami.

The city is served by fifteen main lines of eight railroad systems, more than 275 railway freight merchandise and package cars originate in and move out of Atlanta daily. The Railway Express Agency carries more express shipments per capita in and out of Atlanta than in any other city in the nation.

The same factors causing Atlanta's growth as a railway center have also made it an important trucking center. In fact, Atlanta's excellent rail connections with other parts of the nation have made it a rail-highway transshipment center, with trucks becoming increasingly important for short-and-medium-haul originating or terminating rail freight as well as for carrying freight from point of origin to destination. Atlanta is the leading highway freight center in the region, having thirty more fixed schedule trucking lines in operation than its closest competitor.

Atlanta is the leading center of U. S. government activity in the Southeast. It has been designated officially as the regional headquarters for all defense agencies. Total Federal civilian employment was approximately 21,000 in 1952.

Atlanta is also the regional center in higher education with more than 13,000 students enrolled in its nineteen

colleges and universities in 1950. There are more Negro schools of higher learning in Atlanta than in any other city in the world. In college enrollment, the city ranks first in the Southeast for both white and Negro students.

A study of the recent growth trends in the leading Southeastern cities indicated that Atlanta is likely to maintain its position as the business capital of the region. Table I[4] shows the per cent increase in retail sales, population, wholesale sales and manufacturing employees for the eleven largest metropolitan areas in the Southeast between the last two censuses.

Table 1. Growth Trends in Percentage Increase for the Eleven Largest Metropolitan Areas of the Southeast, 1939 - 1950

Metropolitan Area	Population 1940-50	Retail Sales 1939-48	Wholesale Sales 1939-48	Manufacturing Prod. Employees 1939-47
ATLANTA	+ 28%	+ 232%	+ 363%	+ 46%
Birmingham	21	256	348	56
Memphis	34	245	353	59
Tampa-St. Pete.	49	271	233	19
Knoxville	36	280	321	38
Nashville	25	206	241	44
Jacksonville	44	250	309	41
Chattanooga	16	210	284	41
Mobile	61	362	287	77
Charlotte	29	261	374	31
Miami	83	322	346	100
AVERAGE	+ 35%	+ 258%	+ 334%	+ 47%

[4] Ibid, p. 26.

Atlanta's percentage increase in population has not been as high as the average increase for the eleven urban areas. If Mobile and the Florida cities are eliminated from the list, Atlanta compares favorably in population gain with the other areas.

The percentage changes in retail sales follows the comparable pattern of changes in population. Atlanta's increase in wholesale sales was greater than any other city in the Southeast. Atlanta continued to grow as the regional distribution center, although its population growth was not at as fast a rate as some of the other regional cities.

The future looks bright for Atlanta and taking into account all the things that contribute to making a city the economic center of a region, it does not seem likely that any of the other cities of the Southeast will usurp Atlanta's titled position anytime in the near future.

The Central District of Atlanta

The Atlanta Central District can be generally described in two parts. The area south of Baker Street is known as the "downtown business district", while the area north of Baker is called the "uptown business district".

Before starting the detailed analysis of the CBD boundary indication, a short description of the activities taking place in the central district, in terms of public, industrial, and commercial use, will be given as general background.

Public.--The only concentrated public-use area is located southeast of the main business district. It contains the city, county, and state governmental buildings. All the buildings are within two blocks of each other, at the intersection of Mitchell Street, Washington Street, and Central Avenue. Two new governmental structures are presently being erected on the northern and southern sides of the state capitol building. The Federal offices and other public institutions, such as the library and post-office, are dispersed throughout the central district area.

Industry.--The majority of Atlanta's industry is located along the railroad rights-of-way. There has never been a single industrial center in the metropolitan area, and the present industries are largely decentralized. Much of the industry which located in the central district during the city's early growth has moved out to the fringes of the metropolitan area and there is every indication that it will continue to do so.

One reason for this movement is that downtown property values for industrial purposes have been adversely affected by traffic congestion and blight. Another reason is that much of the industry, of a regional distributive nature, can be better served in outlying areas with additional gains of cheaper land, one story buildings with more floor space per worker, and a satisfactory amount of space for automobile parking.

The outward movement of distributive and manufacturing operations will open up new areas for those industries which must locate near the downtown area because of necessary proximity to customers and suppliers, i.e., manufacturing of a service nature and metropolitan distribution operations. These areas will have to be redeveloped to meet the needs of the new activities by eliminating traffic congestion, conflicting land uses, and blighted residential areas.

The relocation of industry in the peripheral areas should be accelerated as new areas are opened up and existing areas more fully developed. Today, the industrialist in the central district occupies an untenable position, in terms of sales operations and labor efficiency, if his competitors have moved to improved plants in attractive areas and he remains in an obsolescent and deteriorating downtown area.

There are some industries that typically locate near the center of urban activities in the downtown area, and such is the case in Atlanta. Here are located the garment industry or "needles trade", a printing and publishing industry of regional importance, and a diverse distributive group of businesses serving the metropolitan area. These industries seek a central location for various reasons. The garment industry desires locations near its competitors, is dominated by an ethnologically homogeneous group, and

their operation is characterized by such extreme price competition that proximity to a sub-marginal labor force is essential. The printing industry, because of the high degree of competition and specialization of work, must be located near the consumer to make possible continuous personal relationships. The metropolitan distribution activities must be near both customers and suppliers. Accessibility to a large supply of low-skill labor is especially necessary for the food distributions.

There is no reason to believe that the locational preference of these trades will change, nor is it particularly desirable that they do so. However, there is good reason to believe that the physical appearance and efficiency of these operations can be improved through the redevelopment of present industrial concentrations into planned areas.

Commercial.--[5]In terms of economics, the most important area in Metropolitan Atlanta is the downtown business district. This area accounts for forty per cent of all commercial space[6] in the Atlanta area. The downtown district contains the area's highest real estate evaluations and the major metropolitan and regional business functions which are very important to the economy of the area.

---

[5]Economic Supplement, op. cit., pp. 96-102.

[6]Commercial space includes offices, retail trade, retail services, eating and drinking, finance, hotels, theatres, and parking.

The downtown and uptown districts account for fifty-seven per cent of the metropolitan commercial space, being the major location of all such establishments except drive-in theatres and tourist courts which need large amounts of vacant land. The majority of the area's office space, financial establishments, hotels, theatres, large department stores, and specialty shops are found in these two districts.

There have been two major shifts in the location of the area's commercial space in recent years. One concerns the shifting of certain downtown functions to the uptown business district. The other is the shift of consumer-type services to outside areas, nearly half of Atlanta's retail trade and eating and drinking establishments being decentralized.

There are good and bad aspects of these shifts. To a certain extent, they represent a natural development resulting from the CBD growth or from the "legitimate pull" of decentralization to the suburbs. On the other hand, to the extent that the shifts are the results of congestion, inadequate parking facilities, etc., they present a serious problem for the CBD.

The major characteristic of the commercial decentralization trend is that more specialized functions are remaining in the business, while the less specialized are moving out. If this trend continues, the downtown district will

become an area of specialized business operations which require a market which is metropolitan or regional in scope and a geographically central location for the convenience of customers or clients.

The Indications of Atlanta's Central Business District Boundary

The Study Area

The area to be studied was determined by mapping all non-residential uses, beginning at the point of highest concentration in the Five Points vicinity and continuing outward in all directions until the predominant use, in most cases, became residential.

The resulting land-use map is shown in Figure I.[7] The study area was discontinued on the south and east because of the dominance of residential use in the blocks immediately following. On the west, from Memorial to Baker, the railroad becomes a barrier which is not crossed by the non-residential uses. From Baker to Third Street, on the west, the expressway forms a barrier separating residential and non-residential uses. The northern boundary is the only portion of the study area established for reasons other than the dominance of residential uses. Although residential uses are more evident within this commercial corridor than in any other section of the study area, they

---

[7]Based on the 1953 Atlanta Land-Use Map prepared by Harland Bartholomew and Associates.

ATLANTA CBD STUDY

FIGURE I. LAND USE

still are not the dominant land use and the Third Street boundary was established after consideration of other factors available from existing studies on floor/ground space density ratio, rental charges, and time-cost transportation relationships.

The area north of Third Street contains many establishments which are of CBD character, such as a hotel, office buildings, theatres, and several retail outlets. However, intermingled with these establishments are several land uses which could not be classified as CBD activities, such as residences, churches, garages and used-car lots.

This area is still in a stage of transformation from residential to business. And even though there are several intersections and blocks where business uses are concentrated, the over all density ratio is extremely low in comparison to the ratios of like establishments within the rest of the study area. The relatively low rental charges are also indicative of the advantages which the downtown area holds over the corridor development.

The long and narrow shape of this business corridor adds to the costs in time and transportation for the people and goods which must circulate between this area and the more highly concentrated downtown district.

Thus, the lack of concentrated development, the relatively low density and low rental charges, and the added

disadvantage of time-cost transportation factors removed this area from consideration.

These same factors were also responsible for excluding several ribbon-like developments on Whitehall, Auburn, Marietta, and Ponce de Leon.

Natural and Man-Made Features Acting as Barriers to Expansion.--These features often can be used to explain the patterns of various land uses and, in some cases, the existence of certain portions of the CBD boundary.

Except for topography, the important natural and man-made features in the Atlanta CBD study area are shown on the land use map. On the western boundary the railroad and expressway exist as man-made features which have not been crossed by CBD enterprise. However, that portion of the railroad running southeast through the downtown area has been bridged and CBD development continued, interrupted in some cases and continuous in others. The existing viaduct development shows that it is possible to conquer these man-made barriers, and the absence of similar developments in other railroad areas of the CBD would seem to indicate that continuing commercial development at these points is presently not a desperate need.

This area contains one particular land feature which should be mentioned. Peachtree Street rests on a ridge with the land immediately sloping off to the east and west in certain areas. The slope is particularly noticeable

in the study area section between Baker and Auburn. This points out one of the reasons for the lack of intensive development on the streets below and paralleling Peachtree. This topographical feature, plus the magic quality of the name "Peachtree", gives the properties along this street a special and added value.

Grid Areas.--In Figure 2, the blocks within the study area have been numbered and then grouped into grid areas. These numbers correspond to the ones used by the Metropolitan Planning Commission in various statistical analyses. The identical numbering system has been used to facilitate comparison or further work that would necessitate the use of information from this thesis and the Metropolitan Planning Commission files.

The grid map will permit quick identification of areas and also will simplify the presentation of the material in the text of the following sections.

Density

Figure 3[8] shows the floor space/ground space density ratio for the blocks within the study area. This map of density ratio is based on total floor space available,

---

[8]Based on information compiled by the Atlanta Metropolitan Planning Commission.

ATLANTA CBD STUDY

FIGURE 2. GRID AREAS

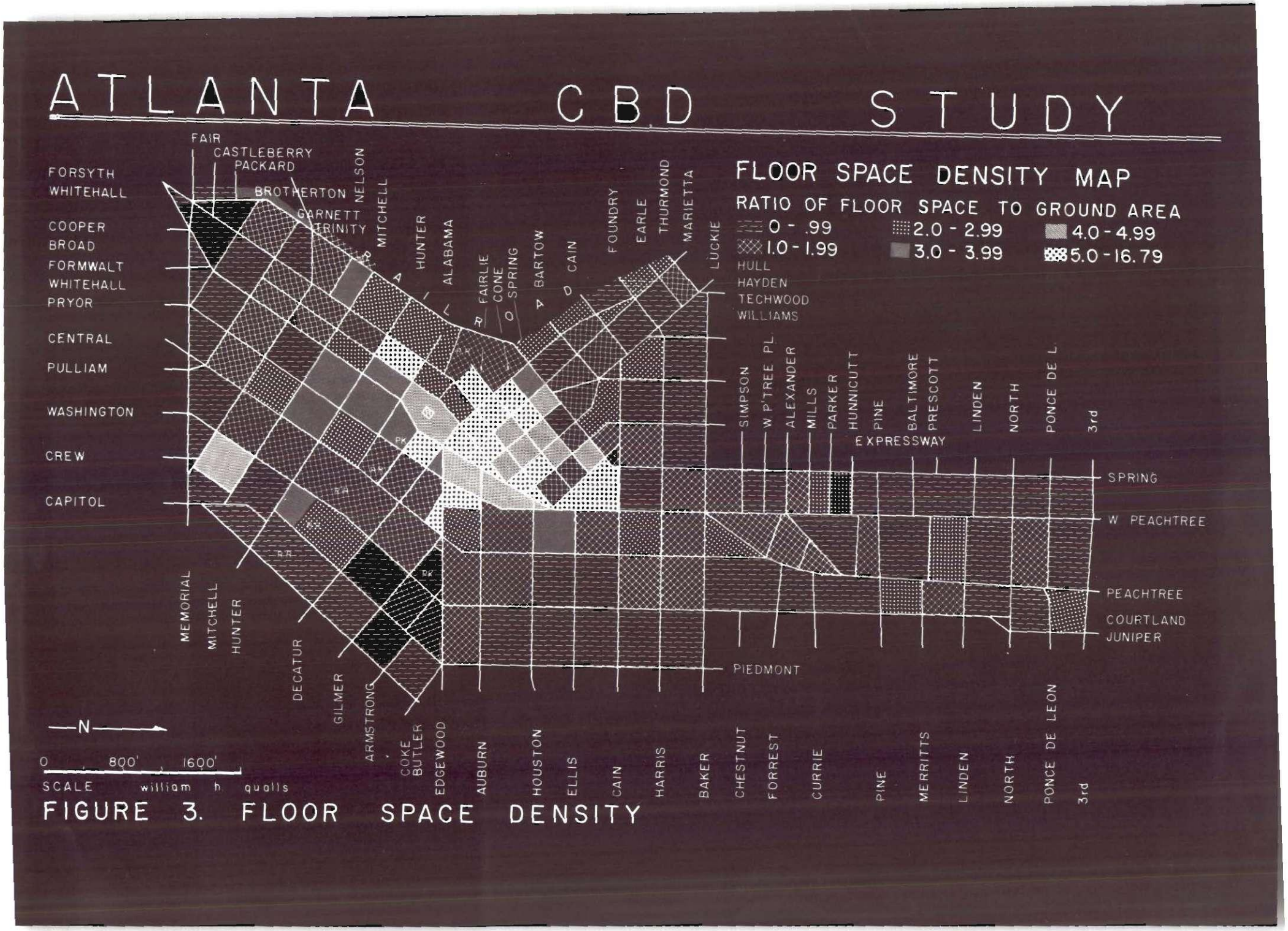


FIGURE 3. FLOOR SPACE DENSITY

for all uses and does not show the density ratios for each of the basic land use types[9] or the three individual functional combinations.[10] However, the space figure tables in Appendix II list the square footage of space use and density ratio figures for each functional combination in each block.

The density ratios for the basic land use types were not mapped because the available information was not gathered in a suitable manner to facilitate the six-way breakdown which would be necessary. The breakdown which was used in gathering the basic space data was suitable, with some modification, for division into the three functional combinations which have been referred to previously. This information is contained in Appendix II and was not presented in map form because Figures 3 and 4, showing total space density ratios and the functional areas, give one a sufficient idea of the floor area within each block and the function which uses the majority of the floor space. When more specific information is necessary, it is readily available in Appendix II.

---

[9] Retailing, Consumer Services, Business Services, Wholesaling Without Stock, Wholesaling with Stock, and Manufacturing.

[10] Retailing and Consumer Services, Business Services and Wholesaling without Stock, and Wholesaling with Stock and Manufacturing.

The space figures for the study area include all non-residential space available for use, whether occupied or vacant. Vacant floor space was included in the functional group corresponding to its previous or most desirable use. The ground space figures include only the square footage within the non-residential property lines, excluding streets and sidewalks.

Within the study area the total ground space amounts to 20,122,043 square feet and the total floor space is 32,544,501 square feet.

The greatest concentration of floor space, 6,764,512 square feet, is found in grid area 6132. Here, approximately twenty-one per cent of the total floor space is contained in seven per cent of the total ground area. All but four blocks having a density ratio above 5.0 are found within this area. Two of the four blocks are located in grid area 6133; all four are within two blocks of the highly concentrated 6132 area.

There are only seven blocks in this entire area that fall below a ratio of 4.0. The major reason for this is the use of much of the land for automobile parking. The highest density ratios in this grid area are found in blocks 42 and 75. Block 42, including the floor space for the Fulton National Bank, has a ratio of 13.08; while block 75 (Dinkler-Plaza Hotel block) has a ratio of 11.22.

Oddly enough, the block having the highest density ratio is in grid area 6137, southeast of 6132. It is block 38, which houses the Hurt Building, and has a ratio 16.79.

Although four other grid areas have some blocks of very high density ratios, none came within even fifty per cent of the concentration exhibited in area 6132.

Thus, from the standpoint of density, the highest value is attained by grid area 6132, with the next highest values being found in the contiguous areas of 6133, 6127, 6136, and 6135. The remaining areas have very low density values, averaging only 1.5 in the highest.

Functional Areas

Before discussing the information contained in Figure 4[12], an explanation will be given of the procedure used to arrive at the functional area designations.

The original space figures were gathered for the nine categories of Retail Trade, Eating and Drinking, Retail Services, Hotels, Structural Parking, Offices, Manufacturing, Wholesaling and Warehousing, and All Other (including theatres, hospitals, churches, clubs, community services, and transportation). For the purposes of this thesis, these nine categories were grouped into the three functional combinations which were studied in Chapter I. To form the

---

[12]Based on information compiled by the Atlanta Metropolitan Planning Commission.

ATLANTA CBD STUDY

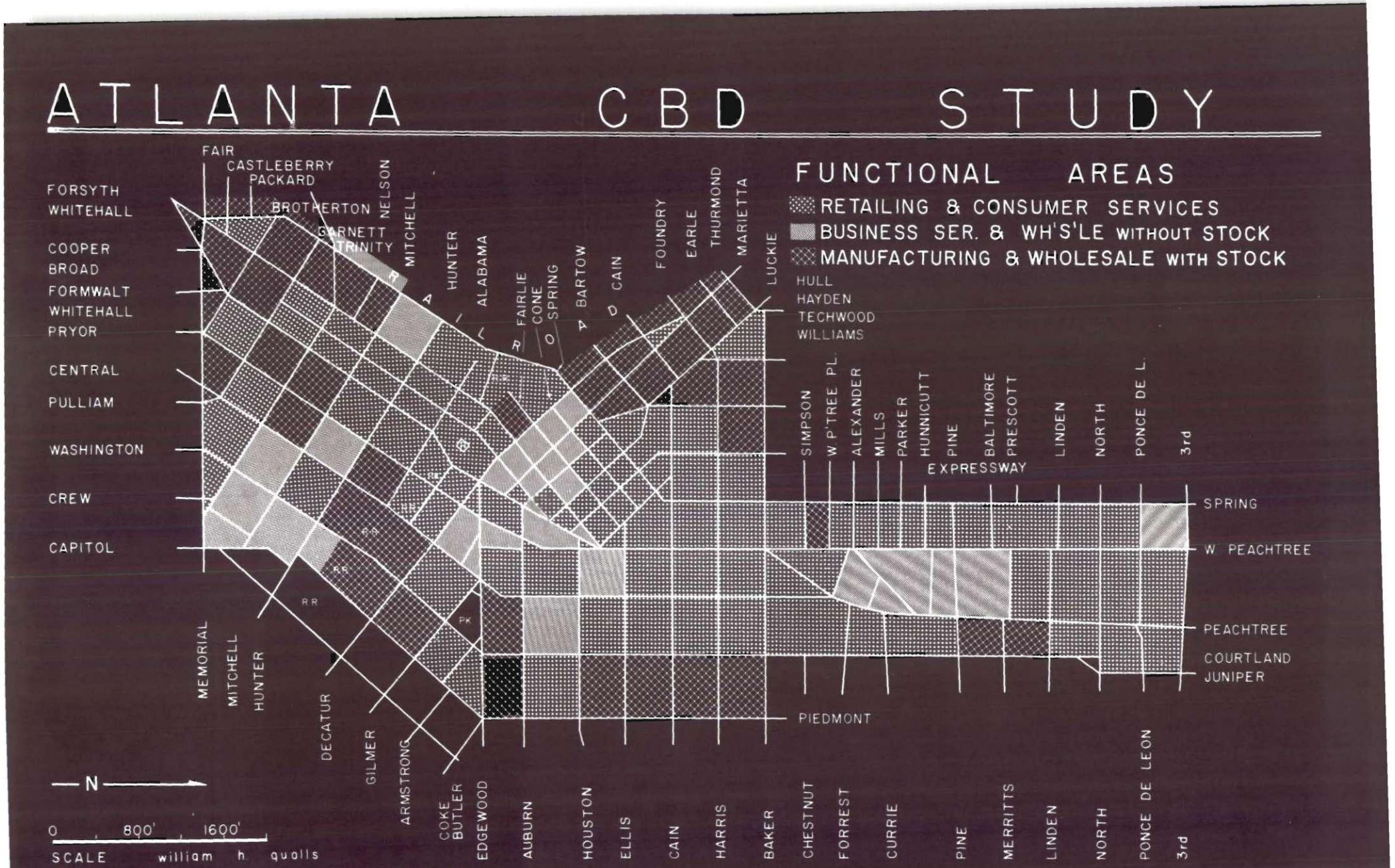


FIGURE 4. FUNCTIONAL AREAS

functional combination of Retailing and Consumer Services, the following categories were grouped together: Retail Trade, Eating and Drinking, Retail Services, Hotels, Structural Parking, and All Others. The office category was used to form the functional grouping of Business Services and Wholesaling without Stocks. The final functional combination of Wholesaling with Stocks and Manufacturing was attained by grouping the categories of Manufacturing and Wholesaling and Warehousing.

There is one change caused by the formation of these combinations which differs from the functional combinations as defined in the first chapter. Whereas the thesis definitions included space used by governmental service units and space used by physicians under Retailing and Consumer Services, the original Atlanta space survey grouped these activities under Business Services and Wholesaling without Stock. Since it is impossible to break the original survey into its many subdivisions, this one modification will have to be inserted at this point and space for the two controversial activities will be included under Business Services and Wholesaling without Stocks.

The map of the functional areas will be analyzed by studying each functional combination separately. One important finding resulting from the study of the functional combinations is the fact that one of the three functional

combinations accounts for fifty per cent or more of the floor space in every study area block, except for three very-low-density blocks.

Retailing and Consumer Services.--This combination accounts for half of the total floor space in the study area, being 15,855,462 square feet. Although these activities appear to stretch from one end of the study area to the other, their main concentration lies along Whitehall and Peachtree, from Mitchell to Baker, with four grid areas (6132, 6133, 6135, and 6136) accounting for 55.9 per cent of all the Retailing and Consumer Services floor space. The majority of this space is located within one block of the Whitehall-Peachtree corridor.

It is interesting to note that three blocks housing Davison's and Rich's account for almost 2,000,000 square feet of floor space, or approximately thirteen per cent of all the floor space in this grouping, in only .02 per cent of the ground space within the study area. They are located in two of four retail blocks having a density greater than 5.0. The third block, 31, is in area 6137, and contains small retail and consumer service establishments. The fourth block, 40, in area 6132, is dominated by high-price men's wear establishments.

The location of the major Business Services and Wholesaling without Stock activities points up a peculiar characteristic of the Atlanta downtown area. This functional

group separates the intensive retail areas into two distinct zones which are very different in character. The one concentrated along Peachtree from Ellis to Harris deals almost exclusively in high-priced merchandise. Rich's stands out as a retail district in itself, selling both high-priced and popular-priced goods, but the retail establishments surrounding it are devoted almost exclusively to the lower-priced lines of goods.

Other than the blocks already mentioned as being dominated by retail trade and having a density above 5.0, there are only three more blocks that merit consideration in this functional combination. These are blocks 81, 75, and 76 in grid area 6132. Each has a density ratio above 5.0, and the dominant space user in each block is a hotel.

The remainder of the blocks in this functional group contain small retail stores, service establishments, and parking facilities.

Thus, the establishments having the highest values for this functional combination are those previously described in the vicinity of Davison's and those at the Rich's and Whitehall shopping district. The combined use of the functional area and density maps will quickly isolate the important blocks for Retailing and Consumer Services.

Business Services and Wholesaling without Stock.--Fifty-five per cent of the space for this functional combination is closely grouped in blocks falling within grid areas 6132,

6133, and 6137. By including five blocks from areas 6136 and 6139, the percentage is raised to approximately seventy-five per cent of the total floor space for this combination.

The majority of this space is used by Business Services and Wholesaling without Stock as defined in the first chapter. Only the five blocks in areas 6136 and 6139, housing city, county, and state governmental units, and one block, 53, in area 6132, housing the Post Office, would be properly included in the previous functional combinations.

Ten of the eighteen blocks having a density above 5.0 are dominated by Business Services and Wholesaling without Stock, and seven of these ten blocks are located on Marietta and Walton, between Peachtree and Cone. Two of the other three blocks are located at the intersection of Pryor and Edgewood; block 38 housing the Hurt Building which has the highest ratio in the study area of 16.79.

Although the governmental blocks are centralized and have a large amount of floor space, the surrounding open spaces bring their density ratios down rather low.

There are also several blocks in grid area 6122 which are dominated by this function, but their floor space figures are relatively small in comparison with the other areas, and the density ratio is extremely low, averaging around 1.25.

Thus, the blocks in area 6132 receive the highest value for this indication, with the governmental blocks

ranking second. The 6122 area is growing in this function, but the present values do not put it in strict competition with the other two areas.

Manufacturing and Wholesaling with Stock.--Five grid areas account for 57.8 per cent of the floor space in this grouping. Three of the areas (6138, 6139 and 6136) are located in the southern part of the study area (and contain 38 per cent of the 57.8 per cent total), and the other two, 6131 and 5115, are on the west in the vicinity of Lucky and Marietta.

The blocks of area 6134 are also dominated by this function, but the area is relatively unimportant when compared to the previously discussed districts. Their density ratio averages only .50, and there are several residential uses also mixed in which tends to lower this area's overall value for this functional combination.

There is only one block in this entire combination which exceeds a 3.0 ratio, and it is block 29 in grid area 6132, housing the Atlanta Journal-Constitution Building and having a density ratio of 5.11.

The garment industry accounts for a large part of the Manufacturing and Wholesaling with Stock floor space in areas 6136 and 6139. Their main concentration is between the governmental district and the Whitehall shopping area. Much of the space alloted to use in this area is presently unoccupied and in buildings which are deteriorated and past the

stage of being useful to the CBD. This is especially true in the block facing the Fulton County Court House on Pryor Street.

The remaining blocks dominated by this function contain establishments devoted to wholesaling with stock and light manufacturing, such as garages and repair shops.

The Manufacturing and Wholesaling with Stock establishments have the lowest overall values of the three functional groupings. The buildings which they generally occupy are the most inefficient and dilapidated in the entire study area, and the nature of their operations is such that they tend to repel activities of the other two functions. However, many establishments of this type need a CBD location for the maximum performance of their function, and while it is not especially desirable that all such uses be excluded from the CBD, their pattern of development should definitely be improved.

Rental Charges

There is no map of rental charges included in this thesis. Complete information on rents per front foot for the study area is being prepared by the staff of the Fulton County Tax Assessor's Office, but it will not be completed or available until sometime during the summer of 1954. There is other information available on rents and evaluations but it is several years old and no longer valid.

Instead of including this out of date material, this section will describe the method by which the Tax Assessor's findings can be used, once they become available, to substantiate other data included in this chapter.

Sufficient information is available to point out the highest rental locations in the study area, and there happen to be two "one-hundred per cent" locations. One is opposite Davison's and the other is on Whitehall between Hunter and Alabama. The charge in Davison's area will be between $8,000 to $10,000 per front foot, while the other one-hundred per cent zone will be roughly two-thirds of this figure. As mentioned earlier, the Davison's retail area deals almost exclusively with high-priced goods and the average buying power of their customers is much higher than those frequenting the Whitehall shopping district.

These two areas are the focal points from which rental charges for the remaining blocks should be plotted; the values receding in all directions from the one-hundred per cent locations. The exact degree and intensity of this recession will not be known until the Tax Assessor's office completes its work. But, knowing the two general locations of the highest values for the rental charge indication will be of help at this stage.

The density map has shown that there are several blocks of comparable density, and the functional area map and Appendix II point out the uses which are dominant within

these blocks. The important information illustrating the quality difference in these blocks would come from the imposition of rental charge data. This would show that even though some blocks are alike in respect to density, they all cannot use their land to the same advantage.

The plotting of rental charges would further show the activities which use their space to the greatest advantage, and the ones paying the highest rents naturally would have the choice locations.

Pedestrian Traffic

Figure 5[13] shows the pedestrian traffic volumes for a restricted segment of the study area; the count being taken for only the two one-hundred per cent areas and the district dominated by offices.

The highest values for this indication are found in the blocks dominated by retail trade. The area on Whitehall, between Alabama and Marietta, has the highest average with a pedestrian count of 920 for the peak periods. The second district in the top category is on Peachtree between Cain and the intersection of Peachtree and Pryor, which includes one of the two one-hundred per cent locations. The one-hundred per cent zone in the Whitehall area falls in the next highest category of pedestrian traffic, and an

---

[13]Based on information from the office of the Fulton County Tax Assessor.

ATLANTA CBD STUDY

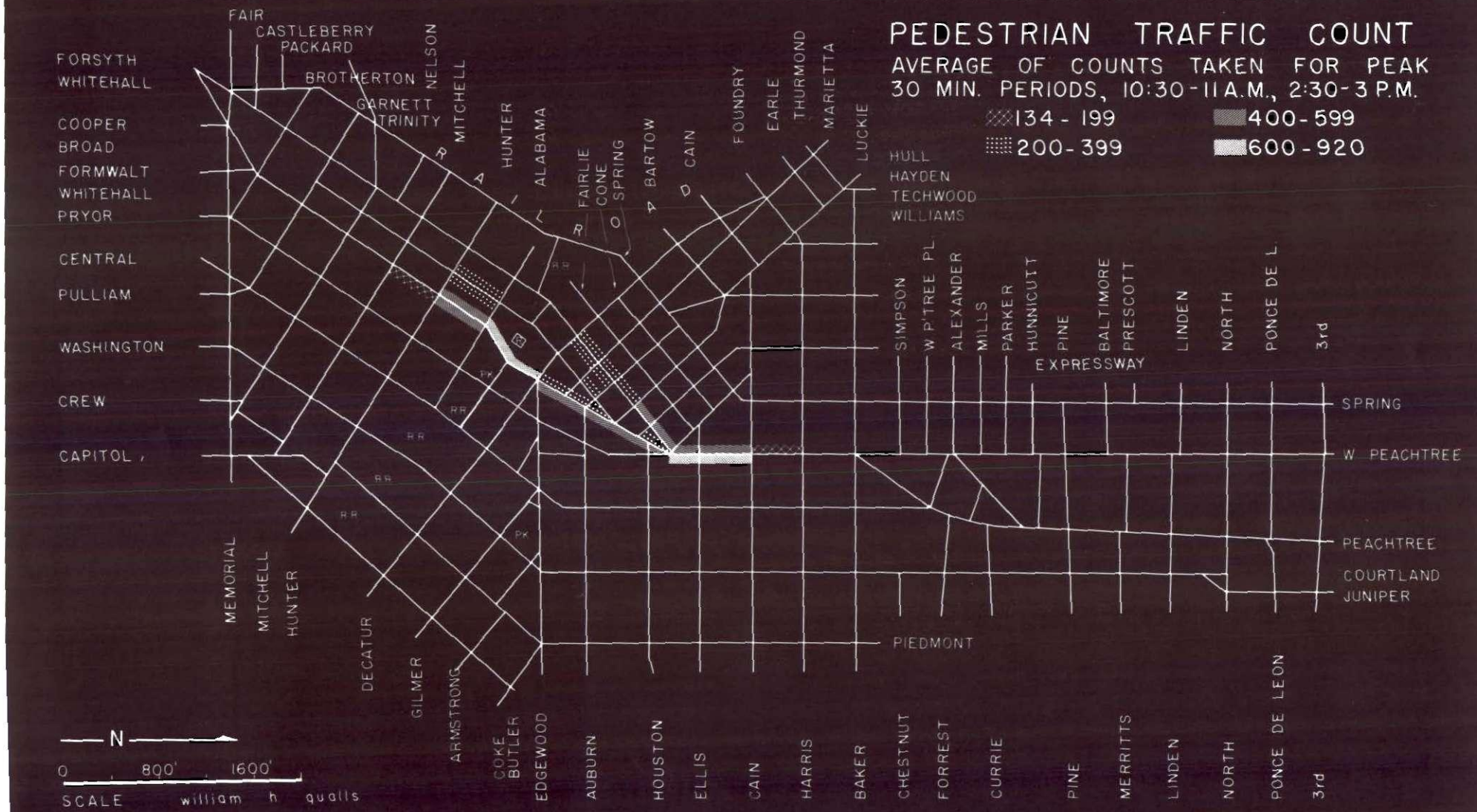


FIGURE 5. PEDESTRIAN TRAFFIC

almost identical count was made on Peachtree between Marietta and the intersection of Peachtree and Pryor.

The highest pedestrian counts are, thus, located on Peachtree-Whitehall from Cain to Hunter, and the majority of the ground uses along this street deal in retail goods, or that function which depends on high pedestrian volumes for maximum operation.

The layout of the streets, in addition to land use, has an important effect on the CBD. The focus of all downtown streets is the Five Points intersection and the major CBD streets radiate from this point; Peachtree-Whitehall running north and south, and Marietta-Edgewood to the east and west. The area from Baker to the Peachtree-Pryor intersection is dominated by one street: Peachtree. At this intersection the method of street orientation changes abruptly with three street radiating from this point and dispersing traffic in three direction. Conversely, these three streets also empty their traffic into the one street, Peachtree, at the Peachtree-Pryor intersection.

South of this area wholly dominated by one street, three traffic arteries play important roles in moving pedestrians and vehicles. Although Peachtree-Whitehall is the major one, Broad and Forsyth are also important. Cone and Fairlie streets contain rather important land uses, especially on Marietta, but the fact that they are not continuous streets is undoubtedly disadvantageous to them.

Their width and intersection with Carnegie Way are also unfortunate happenings; especially the topography of the Carnegie Way intersections.

Transit

Figure 6[14] shows the transit volumes for the streets of the study area. The length of Peachtree from Baker to Peachtree-Pryor shows the highest count of fifty eight buses in the peak thirty minute period. As has already been discussed, this is partially due to the fact that this area is dominated by one street and north-south traffic from several streets converge on Peachtree at this point.

Two other areas which show high transit volumes should be mentioned. One is on Peachtree-Whitehall between Auburn and Mitchell and the other is on Peachtree between Ponce de Leon and Forrest. The reasons for the Whitehall count are the land uses in this area and the connection this street makes with the outlying residential districts. The Ponce de Leon and Peachtree intersections imply the reason for the high volumes along Peachtree. The Ponce de Leon routes serve the eastern areas out to Decatur, and several buses are dispatched to Sears-Roebuck, at which point they loop and return to the downtown area. The northern residential districts are served by transit

---

[14]Based on information from the Atlanta Transit Company.

ATLANTA CBD STUDY

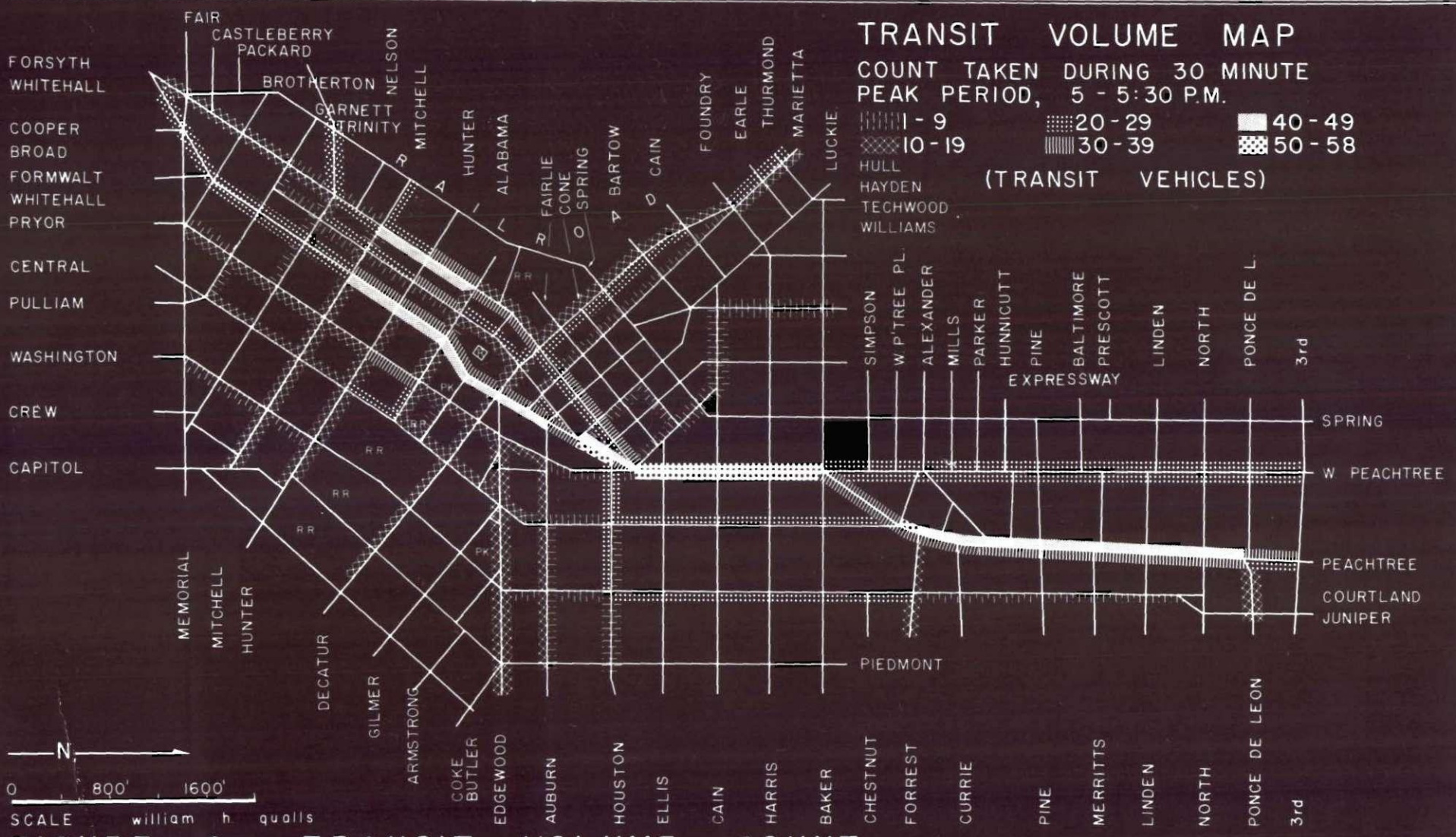


FIGURE 6. TRANSIT VOLUME COUNT

using the Peachtrees. Peachtree Street has a higher volume than West Peachtree mainly because of the buses that run only between the Tenth Street shopping area and downtown. When these two transit routes come together, at Peachtree-Ponce de Leon, the high volume results.

The count on Forsyth between Mitchell and Alabama is due to the Rich's-Whitehall area, transit-turn-arounds, and service to the outlying southern residential zones.

The Peachtree-Whitehall count again reenforces previous data which gave this district high indication values. The transit routing on the remaining streets is conditioned by the land use needing transit service and optimum connection with residential areas.

Parking Facilities

The location and capacity of the off-street parking facilities are shown in Figure 7.[15]

The only areas completely lacking off-street parking are on Peachtree-Whitehall from Mitchell to Harris, and on Broad from Mitchell to the Peachtree-Broad intersection. Since these two areas consistently have shown the highest indication values, this lack of parking enforces the previous contention in Chapter II which stated that parking facilities were not able to compete with the "highest" land uses for the most advantageous sites.

---

[15]Based on information from the office of the City Traffic Engineer.

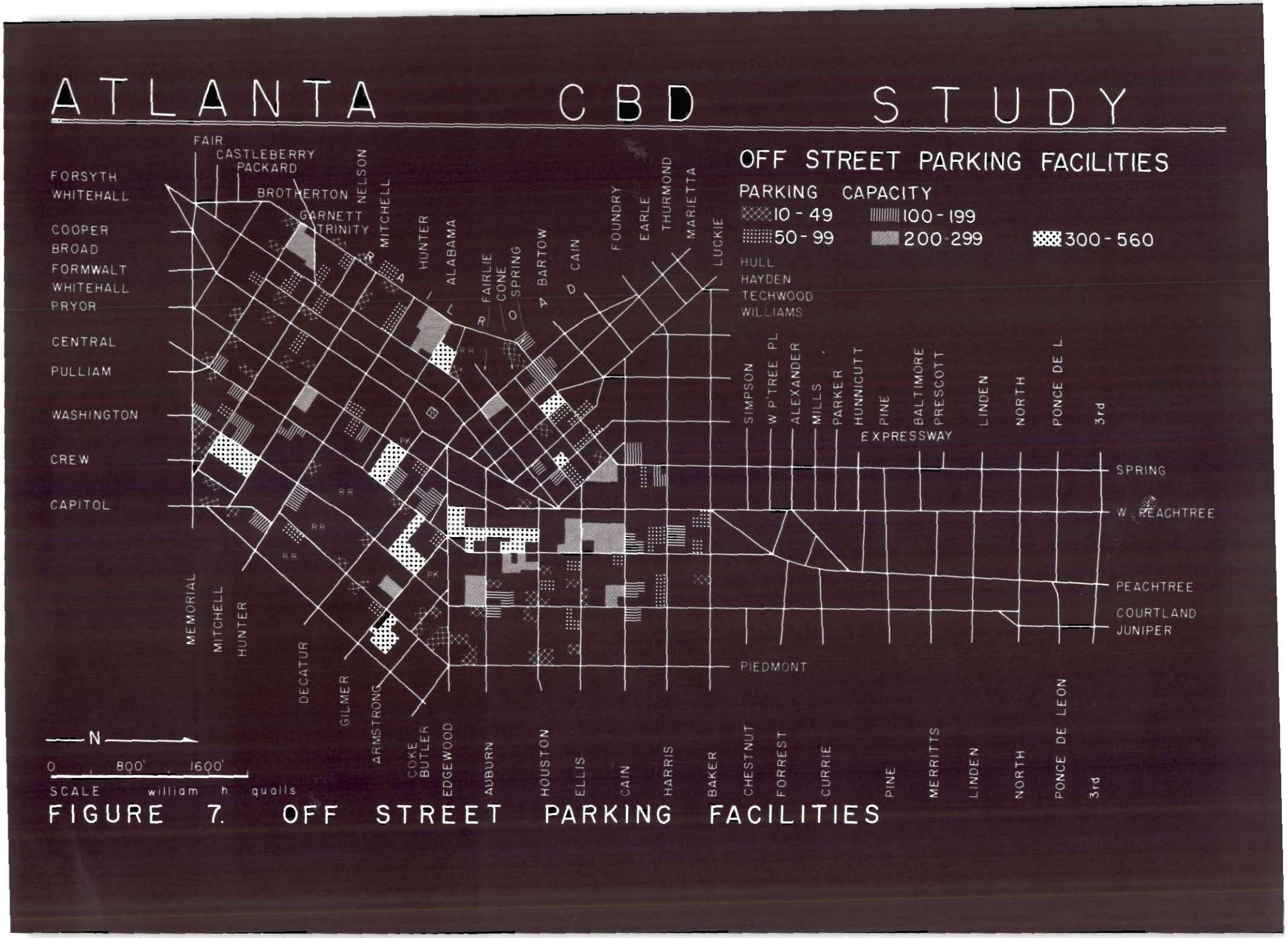


FIGURE 7. OFF STREET PARKING FACILITIES

The main concentration of office space on Marietta and in grid 6132, would be completely void of parking areas except for the facilities which will be provided in the new Fulton National Bank Building. The creation of a parking supply in a district already congested by street traffic is highly questionable and certainly does not agree with the pattern set by the other high land uses of the study area.

Three grids (6132, 6133, and 6137) contain approximately sixty-five per cent of the off-street parking supply. As shown by Figure 7, these facilities tend to ring the establishments generating the greatest parking demand. The Davison's shopping area is best served by these facilities, with the concentrated office area and the Whitehall shopping district running a close second. The governmental blocks are well outlined by parking areas, especially with the new supply to be created in the State Labor and Judicial Building. The remaining off-street parking facilities serve small industrial and manufacturing establishments, and various other parkers who desire all-day accommodations.

Time and Cost Considerations

These factors will be discussed in relation to each of the functional combinations.

Retailing and Consumer Services.--The major concern of activities in this group is with the movement of people. Goods

must also be moved in a minor degree, but the most important factor in the performance of their function is their accessibility to large numbers of people. The maps of pedestrian traffic, transit volumes, and parking facilities, delineated the establishments in this functional combination which have the greatest accessibility advantages. The large retail stores have broken down their packet of functions and relegated the movement of goods to warehouses, outside the CBD. This is true of Rich's, Davison's, and Sears-Roebuck. Each sells its bulk items, such as large appliances and furniture, from floor models and the actual merchandise is prepared and delivered straight to the purchaser's home from their outlying warehouses.

The inclusion of Sears-Roebuck in this group brings out another important consideration for this indication. Although Sears is very definitely a proper CBD use, time-cost considerations remove it from the possibility of being included within the CBD boundary. The time that is required for movement from the Davison's or Rich's area to the Sears location is, at present, too great to adequately tie it in with the downtown areas. The cost of movement, from the standpoint of transit, is very low. This is due to the five-cent shoppers which operate between the downtown area and Sears. These same considerations are also true for the Peachtree-Ponce de Leon area. Transit service is important for the shops at this intersection, but not as much as for

the shopping facilities in the downtown district. This is true because these uptown stores deal in exclusive and high price women's wear and their customers are less dependent on transit service, and more reliant on the use of private cars.

Thus, within the Retail and Consumer Services combination, the activities having the highest values for time-cost considerations are those located on Broad, Whitehall, and Forsyth, from Mitchell to their intersections with Peachtree, and Peachtree from Marietta to Harris. There are several other retailing and service establishments in the study area, and where they do not perform a special service for other high value functional combinations, it is questionable as to whether they should be included within the CBD boundary.

Business Services and Wholesaling without Stock.--The cost and time considerations in the movement of goods and people is of least importance for this combination. Accessibility and convenience for employees and business contacts must be considered, but the movement of people is not extremely important to them. In Atlanta, however, the major concentration of these activities, in grid 6132, has a high degree of accessibility.

The governmental district has the least advantage in this grouping, but they are still very accessible to the people they must serve. A special effort is made by transit

to give special service to this area, and several buses daily loop around these blocks, connecting them with the 6132 grid.

Wholesaling with Stock and Manufacturing.--The movement of goods is of major importance to this functional group. Accessibility to employers and buyers are considerations, but their economic abilities, and space needs are such that they cannot compete for locations having the higher degrees of advantage. The proper performance of these activities is dependent upon the time and cost factors in the transportation of goods, and they tend to locate in areas that can be most readily served by transportation.

The major concentrations of these activities (in grid 6138, 6139, 5115, and 6131) are well located in relation to the lines of transportation. The garment industry could hardly get closer to the retail stores they supply, and convenience to out-of-town buyers is very good

Probably the greatest disadvantage to the activities in this combination is caused by the lack of adequate street design and off-street loading facilities.

Final Determination of the Atlanta Central Business District Boundary

Figure 8 shows the final delimitation of the Atlanta CBD area resolved from the preceding study of indications and functions.

A survey was made by foot, covering every street in the study area, to check the activities within each block against the information compiled in previous sections of this thesis.

The northwest boundary was established on Spring from Harris to Marietta. There are several establishments (film distributors, typographers, Y. M. C. A., hardware wholesale) northwest of this boundary which need a CBD location for their proper functioning, but the low density of blocks, dilapidation of buildings, high percentage of vacant floor space, and intermixture of activities (garages, heavy manufacturing, funeral homes) which do not need a CBD location, led to the exclusion of this area.

The extremely poor physical condition of many of the buildings in the study area points out another factor which should influence the decision as to whether certain buildings can be included within the proper CBD area. A study of this sort would require a thesis in itself and is, of course, beyond the scope of the present undertaking. CBD activities have not been excluded from the Atlanta

ATLANTA CBD STUDY

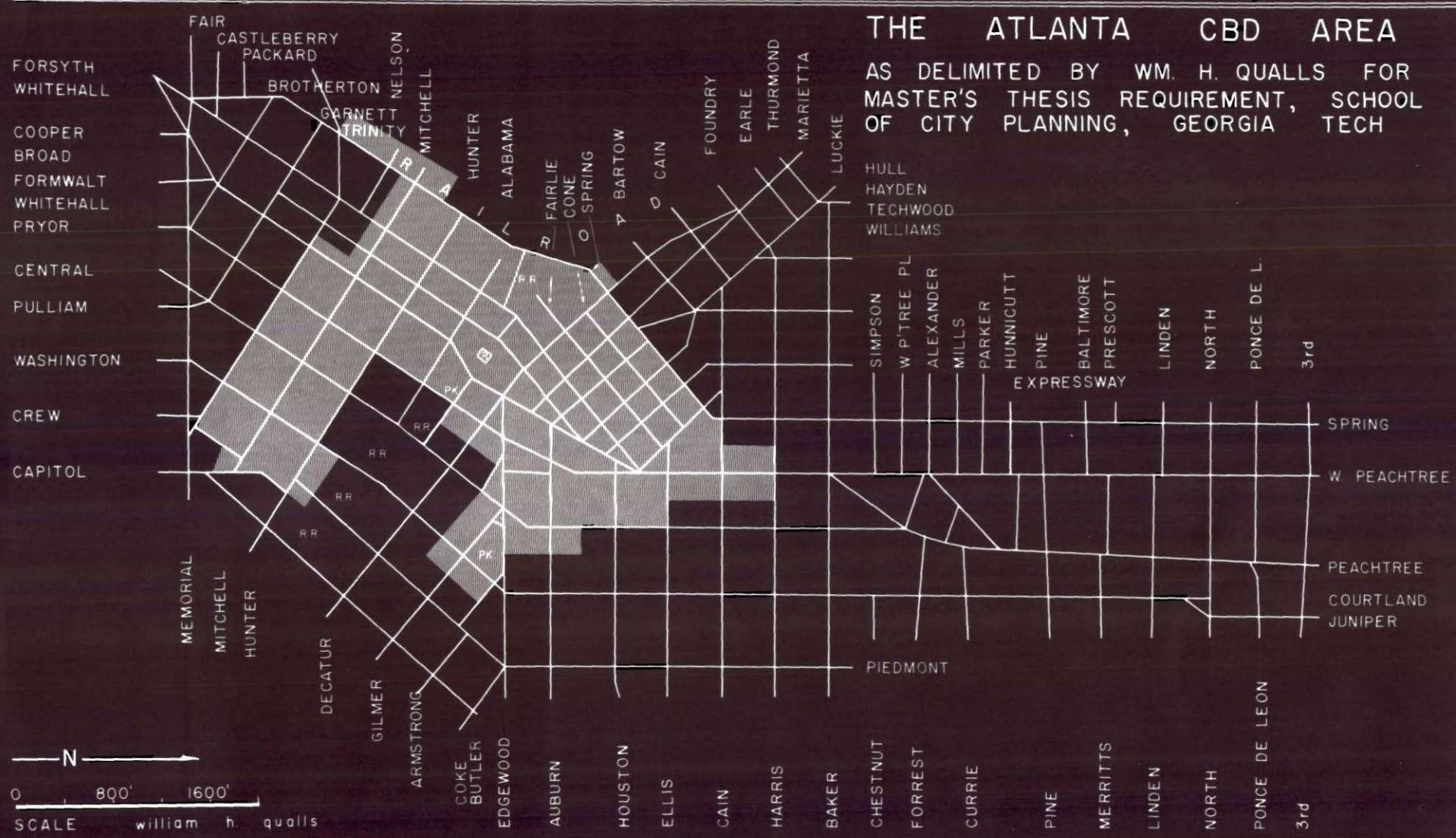


FIGURE 8. DELIMITATION OF THE CENTRAL BUSINESS DISTRICT

delimited area for this one defect, but it cannot be denied that intensive research along this line would possibly justify the exclusion of activities which are of proper CBD character when they are housed in sub-standard structures.

At the Spring-Marietta intersection the Glenn Building was included because of the large amount of occupied floor space and the nature of the activities taking place within this office building.

The boundary then follows Marietta until it reaches the Atlanta Terminal Station. This station and the Southern Railway Office buildings were included because of the regional importance they entail.

The area excluded from the southwest boundary is somewhat like the area excluded on the northwest. The main difference is of the types of CBD activity located in the excluded portions. While the northwest area was dominated by film distributors and printers, the few CBD activities found in the excluded southwest area are wholesalers and garment-makers. The density is low, the rate of vacant space is high, and many of the buildings are ready to fall apart.

The southeast boundary in the government area closely follows the lines of the city, county and state buildings; except for the corner of block 418 which contains the General Railroad Offices. The area between the governmental buildings and the Municipal Auditorium which

is excluded is undoubtedly the most confusing conglamaration of land uses and structures which could be devised. Rube Goldburg could not improve on the situation. The land use in this area exists on two street levels and is a mixture of heavy manufacturing, railroads, wholesaling, warehousing, and low-type retailing. This mixture of uses, low density and general confusion led to the exclusion of this area.

The CBD area in the vicinity of the Auditorium includes the Fire Station, Atlanta Division of the University of Georgia and the Hurt Building.

The Southern Bell Telephone Building is located at the intersection of Auburn and Ivy, and accounts for the jog in the boundary at this point. The activities not included in the eastern boundary are primarily devoted to the automobile trade; consisting of garages, automotive sales, filling stations and parking lots. The density is low and the mixture of land uses, including some residential, excluded this portion of the study area.

The northern boundary was placed at Harris Street. The immediately contiguous blocks are dominated by shoe repair shops, cheap restaurants, and much vacant floor space. North of this boundary, extending up the corridor formed by the two Peachtrees and Spring, there are several activities (office buildings, wholesaling, and retailing) which would be of greater assistance to the Atlanta CBD if they were only located within the delimited area.

In their present locations, it is impossible to consider them as being within the CBD boundary. Time in transportation, if not cost, is one major disadvantage. The low density of the blocks and mixture of land uses is also unfavorable to them.

Throughout the previous discussions of the indications of the CBD boundary for the Atlanta study area, four major districts have consistently received the highest values. Two of these are the Retailing and Consumer Service areas concentrated in the Whitehall and Davison's district, connected by the Peachtree-Whitehall corridor; the third one is the Business Services and Wholesaling without Stocks activities located in grid area 6132; and the fourth one is the governmental district.

For the final resolution of the CBD area, the indications were put to a strict test by making a block-by-block survey to recheck the validity of the conclusions which had been reached in relation to each indication, and the indications as a group.

The final conclusions as shown in Figure 8, bear out the validity of using these indications to establish the boundaries of the Central Business District.

Annotated Bibliography

1. Metropolitan Planning Commission, Up Ahead, Atlanta: Metropolitan Planning Commission, 1952, A Regional land use plan for Metropolitan Atlanta. See especially Part Two and pp. 40-43 and 66-76.

2. Metropolitan Planning Commission, Economic Supplement to the Regional Land Use Plan, Atlanta: Metropolitan Planning Commission, 1952. Discusses the past, present, and future of the general economy of the Atlanta area; gives an inventory of existing commercial facilities and projects their future requirements; and describes the existing pattern of industry and projects their future demands. See especially pp. 1-16, 18-25, 96-113, and 123-137.

APPENDIX

A CHECKLIST OF THE PROBLEMS OF THE CENTRAL BUSINESS DISTRICT

The American city is faced with many problems in its residential, industrial, commercial, and other land use areas. However, the problems of the most serious nature are located in the area which is most important to the well-being of the entire community: the central business district.

Various studies have been made and countless articles written about the particular problems of this district. A few of these articles and studies have been of a more or less comprehensive nature, while others have dealt only with one or two of the more critical problems. But, this author has found none which has presented a listing of the various problems in a manner that would give a planner or city official a quick and thorough look at the total problem.

The reasons for this are many and varied. Possibly some are lack of time, money, or personnel adequately qualified to tackle such work. A particular problem, such as parking, might have dwarfted consideration of all other problems simply because it is so apparent and of such a serious nature.

This section will be devoted to a listing of the problems of the CBD in the hope that it will prove of some worth to the planning field.

It is not assumed that this listing is fully comprehensive and unchallengeable. Some problems have been omitted intentionally because it was felt that other professions could present them with more understanding; others have been omitted due to the author's inadequacy. Additions can and should be made by anyone using this listing.

The problems are presented in a checklist fashion and each is posed as a question to be answered in understanding the entire problem or arriving at a solution. The questions are listed under six main headings of Traffic, Transportation, Parking, Combined Regulation of Traffic, Transportation, and Parking, Land Use, and Centralization and Decentralization.

Traffic

Regulation of Traffic

1. Should the regulation of all traffic be controlled by one agency or should it be controlled by various agencies such as the police department, traffic engineering department?

2. Should traffic and transportation regulation be co-ordinated? Would this be accomplished more efficiently and effectively through an agency having jurisdiction over both, or by separate agencies?

The Street System

1. Do the CBD streets have sufficient capacity and the necessary efficient design to enable them to move traffic at optimum speed? The CBD having streets designed for, and unchanged since, the horse and buggy days will find this a major problem since such streets were not designed to meet the needs of today's voluminous traffic.

2. Are the CBD streets adequately related to the land use traffic generators?

3. Are there too many intersections in the CBD where opposing lines of traffic intersect, e.g., cars vs. cars, pedestrians vs. cars, railroads vs. cars vs. pedestrians?

4. Should some CBD streets be reserved for special uses only, such as certain streets being used only for mass transit or for pedestrian malls?

5. Would early morning and late evening hours for truck pick-up-delivery allow the CBD street system to function more efficiently?

6. Would staggered work hours for CBD business, allowing peak loads on the street system and mass transit to be spread out more, aid in solving some of the CBD problems?

7. Are expressways adequately tied in with existing CBD streets?

8. Do expressway entrances into the CBD area adequately connect with parking facilities?

9. Should provision for transit accommodations be made on expressways?

Is the smooth flow of traffic on existing streets hindered by:

1. Curbside parking on streets needing that lane for moving traffic?

2. Double-parking or other types of illegal parking on the CBD streets?

3. Parking garages, lots, drive-ins, etc., having inadequate storage space in their driveways or entrances for cars to wait until attendants take over or the driver can get serviced, causing traffic to store up in the street lanes until entrance can be made?

4. Loading and unloading from the curb, large truck bodies projecting out into the streets or sidewalks from loading bays, and trucks maneuvering on street to enter or exit from loading bays or driveways?

5. Inadequate driver education and courtesy, e.g., weaving in and out of lanes, improper turning signals, poor car control and other traffic law violations?

Pedestrian Traffic

1. How can conflict between pedestrian and vehicular traffic be lessened?

2. Are diagonal pedestrian crossings at intersections, combined with delayed vehicular movement, more successful at

busy intersections than the cross walks which are commonly used?

3. Should intermediate crossings within blocks be abolished?

4. Should some of the CBD areas having heavy volumes of pedestrian traffic be closed for vehicular movement and used as a pedestrian mall?

Transportation

Mass Transit

1. Do cities and metropolitan areas realize the essential nature of transit?

2. Should there be an attempt to improve transit operation by a definite public policy for the co-ordinated use of highway facilities, possibly with some preferential treatment of the transit vehicle?

3. Should encouragement be given to transit riding by reducing delays through measures such as prohibition of curb parking on business streets, and regulation of fee schedules for off-street parking so as to discourage all day parking, and thus converting preference drivers of automobiles to transit riders?

4. Who should own and operate transit companies? Should they be privately owned and operated, publicly owned and operated, or some combination of the two?

5. Should transit be relieved of the tight regulations commonly administered to utilities?

6. Should recognition be given to the fact, through easement of regulation, restrictions, and controls, that public transit is no longer a monopoly, but is highly competitive?

7. Will easement of regulations lead to more efficient operation by possible more-ready adaptation to changing conditions?

8. Does state utility regulation of transit mean slow action and action that is not thoroughly acquainted with the specific problem of the concerned cities?

9. Would regulation at the city or metropolitan level improve the transit situation; especially since this area would be more intimately acquainted with and interested in a good transit program?

10. If utility regulation of transit were transferred to the city or metropolitan area, what agency should assume the regulating responsibility?

11. What can be done about the many men and vehicles that are used by transit only at peak periods? Must they remain idle during the rest of the day?

12. Should transit be subsidized?

13. What type of transit vehicle (trolley coaches which are electric and rubber-tired, street cars on rails, gasoline rubber-tired buses) should be used? Should the

type vary according to the characteristics of certain service areas or should there be a uniform selection?

14. Are existing fare schemes adequate?

15. Is the zone fare equitable?

16. Should there be special fares for special conditions, e.g., short haul fares, varying rates based upon the time when service is used such as midday shopping fares, differential rates in thin traffic territory where service cannot be rendered at a standard flat rate, special fares for express service?

17. Would the multiple trip ticket system, allowing special tickets according to type of trip and time of day, work better than the weekly pass?

18. Should there be "exact and protected returns" to the investor rather than the present "fair return" which results in so much drawn out litigation?

19. Is there proper planning for the capital costs and financing of modernization?

20. Is overcapitalization a problem of private ownership of transit?

21. What is the proper method to plan for the annual costs of furnishing proper services?

22. Does inadequate scheduling put buses ahead of schedule or make them late, and jam-up buses in the CBD?

23. Does lack of circumferential connectors force cross-town passengers to travel to the CBD to make necessary changes?

24. Are loading and unloading stops properly located?

25. How does transit routing influence land development?

26. Are adequate provisions made on the expressways for use by transit?

27. Are passenger complaints of discourteous drivers, rough riding, crowded buses, etc., given proper attention?

28. How can transit persuade other commercial interests and local governments to take an interest in giving them constructive aid?

29. How can transit induce the public to make more use of their service?

30. Is it really necessary, in the public interest, to try to preserve public transit at all?

31. If so, are cities willing to pay for the service that they seem to expect?

32. If not, are there some new developments in the offing which can preserve at a reasonable cost the mobility that cities need?

Intercity and Interstate Buses

1. Should these buses be routed on the heavily traveled streets of the CBD?

2. Should their routings be limited to the highways outside the CBD, expressways, or definite streets within the CBD?

3. Are adequate accommodations made on the bus terminal property for passenger parking and pick-up?

4. Where should bus terminals be located?

5. Have owners taken proper advantage of state highways and expressways in planning terminal locations?

6. Are passenger stations well located in relation to other modes of transportation?

Railroads

1. To what extent does the Chinese Wall created by railroads divide, block, and prohibit expansion of the CBD?

2. What part could redevelopment play in the Chinese Wall picture?

3. Should passenger and freight terminals be located in the CBD?

4. Is duplication of passenger and freight facilities necessary?

5. Would a union passenger and freight terminal, and joint use of trackage better serve the needs of the city and the railroads?

6. Would by-pass belt lines with jointly used classification yards better serve large freight users which are located outside the CBD? (Combined with trucking service carrying freight into CBD users.)

7. What can be done about grade crossings?

8. Could existing rail lines be used for mass transit?

9. Are freight terminals properly located in relation to picking up and moving goods to customers?

10. Are passenger and freight terminals properly located in relation to other modes of transportation?

Trucking

1. How costly to truckers and merchants is the delay in moving goods caused by CBD traffic congestion?

2. Would early morning and late evening pick-up and delivery hours decrease costs of truckers and merchants, and at the same time improve traffic conditions for all the CBD?

3. Should the city tax truckers according to the time when they use CBD streets?

4. What regulations should the city require for loading and unloading spaces for trucks?

The Helicopter and The Monorail

1. How will these new modes of transportation fit into the life of the CBD?

2. Will both be used effectively for movement of goods and people?

3. How will they affect the economic status of other modes of transportation?

4. How will their necessary physical facilities fit into the CBD land use pattern?

Parking

Supply and Demand

1. How much of the CBD can be used in supplying parking facilities? What portion, irrespective of cost, can be given to parking without jeopardizing the CBD?

2. Is there a greater demand than supply?

3. Is the parking supply properly located in relation to land use traffic generators?

Organization, Ownership, and Operation

1. Should there be a public parking authority?

2. If so, should it have public powers to lease, purchase, and condemn land for parking purposes, and lease or sell, subject to restrictions, to private investors?

3. What type of ownership and operation should be used: public ownership and operation, private ownership and operation, or some form of combination?

Rates and Time Demand

1. Should selective parking rates at curb in relation to curb demand be used rather than present flat-rate system?

2. Should selective parking rates be used in garages in relation to the type of demand in that specific area?

3. Should all-day parkers be allowed to use parking spaces in areas generating short-time parking traffic?

4. Are rates in such areas (3) high enough to encourage the all-day parker to seek accommodations elsewhere?

5. Is there a greater demand for short-time parking than all-day parking in the CBD and, if so, do the parking operators tend to give the correct proportionate share of such spaces to short-time parkers?

Cost Factors of Off-Street Parking

1. What type of facility is appropriate for specific areas of the CBD in relation to land use, economic and demand factors? (Lots, aboveground, below ground, or combination facilities).

2. What is the effect of subsidiary uses? Would car servicing, or renting of first floor to commercial interests better serve the need of the garage owner? Would this type of additional service or use make garages more appealing from the investment viewpoint?

3. Do building and fire code restrictions concerning fire prevention, type of construction, etc., need reworking in view of the special needs of garages?

4. Can builder costs of construction and design layout be improved enough through proper study with competent architects, etc., to make investment more appealing?

5. How can overhead costs in garage operation be reduced? (Self-service, new garage types, better design requiring fewer attendants and less maintenance).

Financing and Budgeting

1. What method should be used in financing parking facilities?

2. Should public funds be used to provide parking facilities and, if so, to what extent?

3. Should publicly owned facilities be financed by general revenues, general obligation bonds, revenue bonds, or special assessments?

4. What effect will subsidized municipal facilities have on existing private commercial facilities?

5. What combination of public and private financing could be used?

6. What are the factors in selecting the method of financing: legal limitations, cost of parking facility, distribution of costs among beneficiaries?

7. What are the factors in estimating operating expenses?

8. What are the factors in estimating and budgeting operating revenues?

Fringe Parking and Shuttle Bus Service

1. Can CBD parking demand be lowered by the use of parking facilities outside the CBD, such as fringe lots combined with shuttle-bus service?

2. Are fringe lots and shuttle-bus service practical only for certain minimum size cities; perhaps 500,000 population?

3. Is advance and continuing publicity an important factor in the success of fringe lots?

4. Are fringe parking lots located and buses routed in proper relation to the origin of customers and their CBD destinations?

5. Should the fringe lots be located in terms of where the people come from rather than where they are going in the CBD?

6. Is there a proper or minimum size for successful fringe parking lots?

7. Is a system of two-way passenger loadings between opposing terminals, with the right of pick-up for short haul passengers, a fundamental factor for the financial soundness of fringe lots and bus service?

8. Does the appearance of parking lots affect their success?

9. Are proper fares being charged for parking and bus service?

10. Is the bus service frequent enough to persuade customers to use parking lots and shuttle-bus service?

Parking Garage Design

1. Are exits and entrances properly located, impeding the traffic flow to the minimum?

2. Should left turns in and out of garages be permitted?

3. Is the reservoir space in attendant-parking garages large enough to absorb peak flows exceeding the rate at which vehicles can be stored?

4. How can compensation be made for inadequate reservoir space?

5. What are the determining factors in selecting the type ramp most suitable for a particular garage: One-way ramps, two-way ramps, clearway ramps, parallel straight ramp, staggered floor ramps, circular ramp?

6. What should be the considerations in the layout of storage floors?

7. How can faulty operating techniques, involved in handling cars, number of necessary attendants, and identification tickets, be improved?

8. Are there desirable features of a garage site other than a rectangular site, minimum dimensions of 120'x120', location on or near major arterial streets, location on side of CBD toward the origin of most potential parkers, location allowing main flows of vehicles to arrive and depart by making only right hand turns to enter and exit, access on two or more streets, location on sloping land which allows use of multiple entrances and exits to different levels without ramps.

9. What should be the design standards for entrances and exits, inbound reservoir space, outbound reservoir space,

parking stalls, access aisles, parking floor construction, ramps and curbs?

Combined Regulation of Traffic, Transportation, and Parking

Necessity

1. Is there necessity for an agency to co-ordinate policies of traffic, transportation, and parking? People and goods must move over the streets of the CBD, using private cars, mass transit, intercity buses, railroads, and trucks. All these vehicles of transport cannot be accommodated on the city streets or in the parking terminals as they are now being used..Could each type of demand be served more effectively through co-ordinated efforts?

Organization and Function

1. If such an agency were formed, where would it best be located in the city or metropolitan structure: as a new department, an existing department, an authority?

2. Would its basic objectives be to economize the utilization of street space for the combination of the many varieties of vehicular traffic, especially in the major thoroughfares that run through the CBD and extend to the outlying residential areas, and co-ordinating the necessary parking facilities?

3. What would such an agency actually program in relation to the CBD: survey basic traffic flows of all

types of traffic; plan service according to traffic flows; promote use of mass transit by adopting financial policy to cover cost of service, adjusting fares to service objectives; establishing co-ordination between city and transit management; provide continuous planning and administration for over-all city control of transportation?

4. Would its functions include traffic regulatory powers of the police department, traffic engineering functions of the traffic engineer, parking lot and garage locations and construction, and regulating the policies of mass transit?

5. In addition to policy making and administrative functions should certain fiscal duties be provided for in the form of taxing powers?

Land Use

Traffic Generation

1. What amount of traffic do different land uses generate?

2. What is the relation of the land uses to street capacities?

Zoning

1. What types of land use should zoning ordinances allow in the CBD?

2. What can be done about non-conforming uses of the CBD?

3. Does lack of land use control, or poorly directed control, admit land uses into the CBD which are inappropriately situated from a community wide viewpoint?

4. Would a refined type of zoning be feasible, used to better adjust activity to environment and to exclude uses locationally not appropriate from districts where their existence will increase over-all friction for the city?

Taxing

1. What should be the city's policy in taxing the CBD land uses?

Centralization and Decentralization

Centralization

1. How does centralization strengthen the CBD?

2. How does centralization affect the opportunities for competitive shopping?

3. How can land use zoning aid CBD centralization?

4. How does centralization in the CBD decrease the cost of friction and improve the general economic conditions of a city?

Decentralization

1. What types of business enterprise are actually moving out of the CBD? (Industry...office and clerical type activities...types which have a minimum of local contacts, where business is done largely by mail and telephone?)

2. Are cities mistaking urban growth for decentralization and thus trying to deal with a situation which does not exist?

3. What are the effects of outlying shopping centers on the CBD? Is it that peripheral retail expansion is taking place at the expense of the CBD, meaning that the CBD will ultimately decline in volume of business and in land values? Or is it that peripheral growth is consistent with and proportionate to the population increase and growth of the urban area, meaning that the CBD will continue to grow as population increases, though perhaps at a slower rate than the population increase?

4. Why are some CBD enterprises moving to the edge of the CBD: normal growth; CBD congestion; lack of parking space; poor transit service?

5. Are the new industrial and commercial facilities developing around new outlying industrial developments due to decentralization only in a minor degree, and mainly in response to a new growth of industrial facilities, instead of a move by existing industries and commerce to the outskirts?

6. Is the continuing replacement of less intensive commercial uses in the CBD by the more intensive uses a desired form of decentralization since it begets centralization and a better concentration of the proper CBD activities?

7. As long as the CBD remains readily accessible to the people and the large variety and availability of goods is offered the shopper, should there be a great fear of the future for the CBD?

8. Does urban redevelopment offer the CBD opportunity to develop areas which can be used by new or expanding CBD business, keeping such business from locating outside the CBD because of lack of suitable CBD property, street traffic and parking problems?

9. What effect will new developments in electronics have on decentralization in the CBD?

10. What effect will military considerations have on decentralization in the CBD?

APPENDIX II

FLOOR SPACE SURVEY FOR THE STUDY AREA

The information in Tables 2 and 3 of this appendix is based on a floor space survey made by the Atlanta Metropolitan Planning Commission. The original space figures were compiled under nine categories which were Retail Trade, Eating and Drinking, Retail Services, Hotels, Structural Parking, Offices, Manufacturing, Wholesaling and Warehousing, and All others (including theaters, hospitals, churches, clubs, community services, and transportation).

For the purposes of this thesis, these nine categories were grouped into the three functional combinations discussed in Chapter I: Retailing and Consumer Services, Business Services and Wholesaling without Stock, and Wholesaling With Stock and Manufacturing. To form the functional combination of Retailing and Consumer Services, the following categories were grouped together: Retail Trade, Eating and Drinking, Retail Services, Hotels, Structural Parking, and All Others. The Office category was used to form the functional grouping of Business Services and Wholesaling Without Stock. The final functional combination of Wholesaling with Stock and Manufacturing was formed by grouping the categories of Manufacturing and Wholesaling and Warehousing.

Table 2 first lists the grid area and the blocks within each grid as illustrated in Figure 2. Next is shown the square feet of floor space in each block that is devoted to each of the three functional combinations. The following column shows the square feet of ground area in each block which was measured from the property lines, excluding streets and sidewalks. The figures in the total floor space column are the sum of floor space in each block for the three functional combinations.

The last four columns show the floor space to ground space density ratio for each block. The first of these columns gives the ratio figure for the total floor space to total ground space and the next three columns show the ratio of floor space for each functional combination to the total ground space.

At the bottom of the block figures for each grid area under "Area Total" is shown the total square feet of floor space in each grid devoted to each functional combination, the total ground space on the grid area, the total floor space, and the density ratios based on the total figures for each grid area. The next line is "Per Cent of All Areas." For each functional combination, this line shows what percentage of all the floor space in each combination is found within the individual grid areas. This same relationship applies to the percentage figures for the total floor space, and total ground space in each grid.

Table 3 groups together the total figures for each grid for reading convenience and also lists the total amount of space for all grid areas by each functional combination, the total of all floor space for all grid areas, and the total of all ground space for all grid areas.

Table 2. Floor Space, Ground Space, and Density Ratio by Block and Area for the Three Functional Combinations.

Area	Block	Retail & Consumer Services In Square Feet of Space	Bus.Ser.& Whlse.without Stock	Wholesale with Stock and Mfg.	Total Ground Space	Total Floor Space	Floor/Ground Space Density Ratios			
							Total	Retail	Off.	Mfg.
6138	424	-----	----	286,529	95,519	286,529	3.00	---	---	3.00
	422-3	72,357	227,984	----	213,683	300,341	1.40	.30	1.10	---
	1	51,944	21,780	131,358	123,966	205,082	1.70	.42	.18	1.10
	2	168,930	2,548	49,774	140,359	221,252	1.60	1.20	.10	.35
	13	45,286	44,284	220,427	88,400	309,997	3.50	.50	.50	2.50
	425	3,940	5,635	77,799	127,563	87,374	.69	.03	.04	.61
	426	18,125	2,532	----	85,370	20,657	.24	.21	.03	---
	427	10,444	----	161,982	161,471	172,426	1.07	.07	---	1.00
	428	7,310	7,704	31,920	114,297	46,934	.41	.06	.07	.28
	429	30,078	16,584	118,556	136,610	165,218	1.21	.22	.12	.87
	430	16,855	----	100,843	163,944	117,698	.72	.10	---	.61
	431	1,271	----	96,583	127,307	97,854	.75	.09	---	.76
Area Total		426,540	329,051	1,275,771	1,578,489	2,031,362	1.29	.27	.21	.81
% of All Areas		2.69%	3.71%	16.32%	7.85%	6.24%				
6139	3	95,103	2,646	127,281	189,520	225,030	1.19	.50	.01	.68
	4	27,106	28,942	303,578	152,672	359,626	2.36	.18	.19	1.99
	5	34,740	144,881	----	166,430	179,621	1.08	.21	.87	---
	6	3,261	734,703	----	169,744	737,964	4.35	.02	4.33	---
	432	6,013	----	44,792	60,393	50,805	.84	.10	---	.74
	433	13,422	----	3,267	149,868	16,689	.11	.09	---	.02
	434	31,528	4,500	195,034	149,400	231,062	1.55	.21	.03	1.31
	435	109,036	----	55,301	148,742	164,337	1.10	.73	---	.38
	436	5,555	----	38,712	121,218	44,267	.37	.05	---	.32
	437	41,670	7,514	16,003	182,301	64,827	.36	.23	.04	.09
	438	44,185	----	720	134,048	44,905	.34	.33	---	.01
	439	12,175	58,686	----	80,710	70,861	.88	.15	.73	---
Area Total		423,794	981,872	784,688	1,705,046	2,190,354	1.28	.25	.58	.45
% of All Areas		2.67%	11.07%	10.04%	8.47%	6.73%				

Area	Block	Retail & Consumer Services In	Bus.Ser.& Whlse.without Stock Square	Wholesale with Stock and Mfg. Feet of	Total Ground Space	Total Floor Space	Floor/Ground Space Density Ratio Total	Retail	Off.	Mfg.
6135	11	108,421	50,965	33,518	72,240	192,904	2.67	1.50	.71	.46
	12	107,460	----	34,984	72,250	142,444	1.97	1.48	---	.49
	14	159,884	257,538	18,280	174,300	435,702	2.49	.92	1.48	.10
	15-16	987,977	16,625	79,676	231,975	1,092,328	4.70	4.26	.07	.37
	17	257,978	740	15,428	70,550	274,146	3.89	3.66	.01	.22
	27	124,577	75,387	67,846	109,925	267,810	2.44	1.13	.69	.62
	28	117,178	72,356	----	81,090	189,534	2.34	1.45	.89	---
	440	143,033	----	----	323,970	143,033	.44	.44	---	---
Area Total		2,006,508	473,611	249,732	1,136,300	2,729,851	2.41	1.77	.42	.22
% of All Areas		12.66%	5.34%	3.19%	5.65%	8.39%				
6136	7	26,700	142,180	----	191,099	168,880	.88	.14	.74	---
	8	122,182	8,023	43,010	171,810	173,215	1.01	.71	.05	.25
	9	241,844	224,086	----	151,635	465,930	3.07	1.60	1.47	---
	10	416,638	7,545	126,927	154,242	551,110	3.57	2.70	.05	.82
	18	449,853	32,215	5,435	153,088	487,503	3.18	2.94	.21	.03
	19	92,222	10,242	176,922	138,610	279,386	2.02	.67	.07	1.28
	20	8,283	8,372	154,666	92,545	171,321	1.85	.10	.10	1.65
	21	24,710	289,098	342,035	304,000	655,843	2.16	.08	.95	1.13
	24	113,146	----	28,620	85,680	141,766	1.65	1.32	---	.33
	25	160,231	82,359	6,858	69,635	249,448	3.48	2.40	1.18	.10
Area Total		1,552,924	804,120	888,973	1,512,344	3,246,017	2.15	1.03	.53	.59
% of All Areas		9.80%	9.07%	11.37%	7.52%	9.97%				

Area	Block	Retail & Consumer Services In Square Feet	Bus.Ser.& Whlse.without Stock of Space	Wholesale with Stock and Mfg.	Total Ground Space	Total Floor Space	Floor/Ground Space Density Ratio			
							Total	Retail	Off.	Mfg.
6137	22	72,603	----	80,144	198,000	152,747	.77	.37	---	.40
	23	58,437	5,224	366,829	303,420	430,490	1.42	.19	.02	1.21
	31	237,897	31,628	1,750	48,585	271,275	5.58	4.90	.65	.03
	32	71,193	39,808	6,770	63,110	117,771	1.87	1.13	.63	.11
	33	284,741	8,765	8,213	196,425	301,719	1.54	1.45	.05	.04
	34	127,734	4,980	21,249	117,909	153,963	1.31	1.08	.05	.18
	35	69,662	----	45,616	108,920	115,278	1.06	.64	---	.42
	36	----	----	----	171,600	----	---	---	---	---
	37	76,472	127,440	26,252	116,600	230,164	1.97	.66	1.10	.21
	38	9,993	517,007	----	31,387	527,000	16.79	.32	16.47	---
	39	66,311	13,560	----	22,788	79,871	3.51	2.91	.60	---
Area Total		1,075,043	748,412	556,823	1,378,744	2,380,278	1.73	.78	.54	.41
% of All Areas		6.78%	8.44%	7.12%	6.85%	7.31%				
6133	56	247,022	34,514	15,890	67,534	297,426	4.40	3.66	.50	.24
	57	82,346	228,464	----	48,700	310,810	6.38	1.69	4.69	---
	58	259,984	1,242	23,678	126,640	284,904	2.25	2.05	.01	.19
	59	80,480	39,448	146,673	165,142	266,601	1.62	.49	.24	.89
	62	59,243	325,075	49,000	247,506	433,318	1.75	.24	1.31	.20
	63	306,024	7,674	92,555	203,976	406,253	1.99	1.50	.04	.45
	64	173,127	194,766	30,749	96,682	398,642	4.12	1.79	2.01	.32
	77	236,330	275,253	----	149,752	511,583	3.42	1.58	1.83	---
	79	94,922	24,369	58,763	195,525	178,054	.91	.48	.13	.30
	87	70,246	21,044	30,740	198,768	122,030	.61	.35	.11	.15
	88	235,657	----	12,250	156,390	247,907	1.59	1.51	---	.08
Area Total		1,845,381	1,151,849	433,298	1,656,615	3,430,528	2.09	1.12	.70	.27
% of All Areas		11.64%	12.99%	5.54%	8.23%	10.54%				

Area	Block	Retail & Consumer Services In	Bus.Ser.& Whlse.without Stock Square	Wholesale with Stock and Mfg. Feet of	Total Ground Space	Total Floor Space	Floor/Ground Space Density Ratio Total	Retail	Off.	Mfg.
6134	60	57,842	2,670	134,290	179,225	194,802	1.09	.32	.02	.75
	61	65,493	28,762	51,450	257,050	145,705	.57	.26	.11	.20
	80	20,780	4,617	115,813	214,000	141,210	.66	.10	.02	.54
	86	31,882	3,515	49,906	214,000	85,303	.40	.15	.02	.23
	95	14,720	----	77,561	216,000	92,281	.43	.07	---	.36
	96	8,545	----	91,969	214,485	90,514	.42	.04	---	.38
Area Total		199,262	39,564	510,989	1,294,760	749,815	.58	.15	.03	.40
% of All Areas		1.26%	.45%	6.53%	6.43%	2.30%				
6132	26	337,412	273,010	28,020	144,621	638,442	4.41	2.33	1.89	.19
	29	21,114	160,591	169,400	68,619	351,105	5.11	.31	2.34	2.46
	30	171,581	159,700	24,288	221,250	355,569	1.66	.77	.72	.17
	40	80,898	213,821	----	36,966	294,719	7.97	2.19	5.78	---
	41	48,989	121,916	----	33,453	170,095	5.08	1.45	3.63	---
	42	54,084	491,714	570	41,748	546,368	13.08	1.30	11.77	.01
	43	33,254	217,296	----	42,768	250,550	5.86	.78	5.08	---
	44	10,209	130,616	1,890	45,400	142,715	3.14	.23	2.87	.04
	51	147,843	12,248	15,440	37,830	175,531	4.64	3.91	.32	.41
	52	49,781	162,979	4,464	39,400	217,228	5.51	1.26	4.14	.11
	53	67,789	103,211	----	39,006	171,000	4.38	1.74	2.64	---
	54	8,159	255,941	----	35,084	264,100	7.53	.23	7.30	---
	55	116,332	35,799	5,833	24,487	157,964	6.45	4.75	1.46	.24
	65	78,507	73,996	----	35,066	152,503	4.35	2.24	2.11	---
	66	66,542	108,815	4,028	39,004	178,755	4.58	1.70	2.78	.10
	67	123,445	61,706	----	38,612	185,151	4.79	3.20	1.59	---
	68	8,390	----	----	38,800	8,390	.21	.21	---	---
	73	14,653	----	34,711	38,220	49,364	1.29	.38	---	.91
	74	178,474	----	----	39,000	178,474	4.58	4.58	---	---
	75	341,970	93,400	----	38,808	435,370	11.22	8.81	2.41	---

Area	Block	Retail & Consumer Services In	Bus.Ser.& Whlse.without Stock Square	Wholesale with Stock and Mfg. Feet of	Total Ground Space	Total Floor Space	Floor/Ground Space Density Ratio Total	Retail	Off.	Mfg.
6132 cont.	76	176,113	124,951	1,178	36,301	302,242	8.33	4.87	3.43	.03
	81	90,152	71,218	748	16,845	162,118	9.62	5.35	4.23	.04
	82	76,949	----	----	38,612	76,949	1.99	1.99	---	---
	83	50,121	----	----	39,006	50,120	1.28	1.28	---	---
	84	120,002	49,054	----	38,400	169,056	4.40	3.12	1.28	---
	89	981,334	99,250	----	148,120	1,080,634	7.29	6.62	.67	---
Area Total		3,454,097	3,020,602	290,570	1,395,426	6,764,512	4.58	2.47	2.17	.21
% of All Areas		21.79%	34.06%	3.72%	6.93%	20.79%				
6131	45	20,358	----	55,018	86,460	75,376	.87	.24	---	.63
	46	61,265	----	108,495	89,765	169,760	1.89	.68	---	1.21
	49	65,812	2,090	95,267	105,531	163,169	1.55	.62	.02	.91
	50	18,815	15,626	20,500	48,405	54,941	1.14	.39	.33	.42
	69	104,035	12,156	16,604	84,535	132,795	1.57	1.23	.14	.20
	72	203,919	84,432	37,774	124,647	327,130	2.63	1.64	.68	.31
	85	17,789	----	1,350	13,454	19,139	1.42	1.32	---	.10
	421	49,435	52,046	111,530	75,057	213,011	2.84	.66	.69	1.49
	441	----	----	80,000	532,000	80,000	.15	---	---	.15
	443	----	----	302,546	112,875	302,546	2.68	---	---	2.68
Area Total		541,428	166,350	830,089	1,387,929	1,537,867	1.11	.39	.12	.60
% of All Areas		3.41%	1.88%	10.62%	6.9%	4.73%				
5115	47	53,401	----	3,132	27,195	56,533	2.08	1.96	---	.12
	48	33,569	6,500	68,515	117,115	108,584	.93	.29	.06	.58
	70	19,510	----	17,235	113,854	36,745	.32	.17	---	.15
	71	1,676	2,725	267,791	127,093	272,192	2.14	.01	.02	2.11
	102	7,820	8,636	16,471	157,896	32,927	.21	.05	.06	.10
	444	8,384	8,250	61,245	96,820	77,879	.80	.09	.08	.63

Area	Block	Retail & Consumer Services In	Bus.Ser.& Whlse.without Stock Square	Wholesale with Stock and Mfg. Feet of	Total Ground Space	Total Floor Space	Floor/Ground Space Density Ratio Total	Retail	Off.	Mfg.
5115 cont.	445	3,614	----	122,110	58,304	125,724	2.16	.06	---	2.10
	446	15,000	----	36,136	93,620	51,136	.55	.16	---	.39
	447	----	----	55,929	21,105	55,929	2.65	---	---	2.65
	448	----	----	89,110	58,672	89,110	1.52	---	---	1.52
Area Total		142,974	26,111	737,674	871,674	906,759	1.04	.16	.03	.85
% of All Areas		.90%	.30%	9.43%	4.33%	2.79%				
6124	90	116,022	----	33,900	152,434	149,922	.98	.76	---	.22
	91	164,319	----	----	150,000	164,319	1.10	1.10	---	---
	92	96,929	7,200	2,660	150,000	106,789	.71	.65	.04	.02
	99	114,796	3,232	60,154	147,376	178,182	1.21	.78	.02	.41
	100	68,665	6,736	57,948	154,836	133,349	.86	.44	.04	.38
	101	21,039	4,160	27,370	147,820	52,569	.36	.14	.03	.19
	207	49,067	----	22,988	68,208	72,055	1.10	.71	---	.39
	213	46,298	----	7,841	67,275	54,139	.81	.68	---	.13
	217	6,075	13,666	27,314	74,800	47,055	.63	.08	.18	.37
	220	80,256	47,160	13,095	124,362	140,511	1.13	.65	.38	.10
Area Total		763,466	82,156	253,270	1,237,111	1,098,890	.89	.62	.07	.20
% of All Areas		4.82%	.93%	3.24%	6.15%	3.38%				
6125	93	150,817	113,235	142,570	156,400	406,622	2.60	.96	.72	.92
	94	132,162	15,000	62,760	198,000	209,922	1.06	.67	.08	.31
	97	241,778	----	----	196,612	241,778	1.23	1.23	---	---
	98	140,585	----	34,744	155,618	175,329	1.13	.90	---	.23
	202	36,575	----	22,650	117,895	59,225	.50	.31	---	.19
	208	203,246	3,080	24,065	342,093	230,391	.67	.59	.01	.07
	221	130,771	69,610	66,779	108,300	267,160	2.47	1.21	.64	.62
AreaTotal		1,035,934	200,925	353,568	1,274,918	1,590,427	1.25	.81	.16	.28
% of All Areas		6.53%	2.26%	4.52%	6.34%	4.89%				

Area	Block	Retail & Consumer Services In	Bus.Ser.& Whlse.without Stock Square	Wholesale with Stock and Mfg. Feet of	Total Ground Space	Total Floor Space	Floor/Ground Space Density Ratio			
							Total	Retail	Off.	Mfg.
6122	167	42,273	850	----	148,467	43,123	.29	.28	.01	---
	174	99,230	66,520	2,720	206,131	178,470	.87	.48	.32	.07
	182	66,950	----	27,380	100,440	94,330	.94	.67	---	.27
	189	13,761	----	12,276	77,330	26,037	.34	.18	---	.16
	195	81,522	575	66,005	66,660	148,102	2.22	1.22	.99	.01
	199	70,812	----	90,600	68,406	161,412	2.36	1.03	---	1.33
	168	136,510	132,395	3,440	296,548	272,345	.92	.46	.45	.01
	175	461,059	----	----	163,842	461,059	2.81	2.81	---	---
	183	50,961	149,869	47,308	278,685	248,138	.89	.18	.54	.17
	190	38,695	94,075	8,432	111,041	141,202	1.27	.35	.85	.07
	196	49,615	86,330	3,600	226,228	139,545	.62	.22	.38	.02
	200	9,750	43,173	19,178	55,175	72,101	1.31	.18	.78	.35
	201	107,162	116,570	----	123,810	223,732	1.81	.87	.94	---
	214	74,763	14,428	48,602	121,175	137,793	1.14	.62	.12	.40
	169	93,635	2,777	7,967	107,650	106,379	.99	.88	.03	.08
	177	56,828	600	59,327	100,729	116,755	1.16	.56	.01	.59
	184	18,590	33,745	178,840	106,666	231,175	2.17	.17	.32	1.68
	191	118,341	7,504	36,070	206,684	161,195	.78	.57	.04	.17
	129	19,986	35,915	13,033	190,017	68,934	.36	.11	.19	.06
	130	41,302	4,092	7,496	126,038	52,890	.42	.33	.03	.06
	131	195,973	2,592	3,476	190,605	202,041	1.06	1.03	.01	.02
	132	123,120	35,947	1,216	330,770	160,319	.49	.37	.11	.01
	164	341,072	11,674	7,169	159,390	359,915	2.26	2.14	.07	.05
	165	76,201	5,200	----	130,200	81,401	.63	.59	.04	---
Area Total		2,388,111	844,836	654,135	3,692,687	3,887,082	1.05	.65	.23	.17
% of All Areas		15.06%	9.53%	8.37%	18.35%	11.94%				

Table 3. Floor Space for each Functional Combination by Grid Area. Total Floor Space and Ground Space for each Grid Area.

Area	Retail & Consumer Services	Bus. Ser. & Whlse. without Stock	Wholesale with Stock and Mfg.	Total Area Floor Space	Total Area Ground Space
	In	Square	Feet of	Space	
6138	426,540	329,051	1,275,771	2,031,362	1,578,489
6139	423,794	981,872	784,688	2,190,354	1,705,046
6135	2,006,508	473,611	249,732	2,729,851	1,136,300
6136	1,552,924	804,120	888,973	3,246,017	1,512,344
6137	1,075,043	748,412	556,823	2,380,278	1,378,744
6133	1,845,381	1,151,849	433,298	3,430,528	1,656,615
6134	199,262	39,564	510,989	749,815	1,294,760
6132	3,454,097	3,020,602	290,570	6,764,512	1,395,426
6131	541,428	166,350	830,089	1,537,867	1,387,929
5115	142,974	26,111	737,674	906,759	871,674
6124	763,466	82,156	253,270	1,098,892	1,237,111
6125	1,035,934	200,925	353,568	1,590,427	1,274,918
6122	2,388,111	844,836	654,135	3,887,082	3,692,687
Totals	15,855,462	8,869,459	7,819,580	32,544,501	20,122,043

1. Total Space in Study Area devoted to Business Services and Wholesaling without Stock is 8,869,459 square feet, which is 27.25% of all Floor Space in the Study Area.
2. Total Floor Space in the Study Area devoted to Retailing and Consumer Services is 15,855,462 square feet, which is 48.72% of all Floor Space in the Study Area.
3. Total Floor Space in the Study Area devoted to Wholesaling with Stock and Manufacturing is 7,819,580 square feet, which is 24.03% of all Floor Space in the Study Area.
4. TTotal Floor Space is 32,544,501 sq.ft. Total Ground Space is 20,122,043 sq.ft.

BIBLIOGRAPHY

General

1. Alderson and Sessions, Philadelphia Central District Study, Philadelphia: Philadelphia City Planning Commission, 1951.

2. Alevizos, John P. and Allen E. Beckwith, "What Every Retailer Should Know About the Downtown Dilemma," Harvard Business Review, January-February, 1954.

3. Anderson, Nels and E. C. Lindeman, Urban Sociology, New York: F. S. Crofts and Co., 1928.

4. Bartholomew, Harland, "Urban Land Uses," Harvard City Planning Studies, IV, Cambridge: Harvard University Press, 1932.

5. Bibbins, J. Rowland, "Rapid Transit Development and The Modern City Plan," Annals, vol. CXXXIII, September, 1927.

6. Breese, Gerald William, The Daytime Population of The Central Business District of Chicago, Chicago: University of Chicago Press, 1949.

7. Burgess, Ernest W., "The Growth of the City," The City edited by Robert E. Park, Ernest Burgess, and Roderick D. McKenzie, Chicago: University of Chicago Press, 1925.

8. Canoyer, Helen G., Selecting A Store Location, Washington: United States Department of Commerce, 1946.

9. Carroll, J. D. Jr., "Future of the Central Business District", Public Management, vol. XXXV, July, 1953.

10. Colean, Miles, Renewing Our Cities, New York: The Twentieth Century Fund, 1953.

11. Dorau, Herbert B., "Urbanism and the Future of Land Values," Appraisal Journal, January, 1949.

12. Dorau, Herbert B., and Albert A. Himnan, Urban Land Economics, New York: McMillan Company, 1928.

13. Eberle, George J., The Business District, Los Angeles: Pacific Southwest Academy of Political and Social Science, 1941.

14. "Flight to the Suburbs," Time, vol. LXIII, no. 12, March 22, 1954.

15. Firey, Walter, Land Use in Central Boston, Cambridge: Harvard University Press, 1946.

16. Fisher, Howard T., "The Impact of New Shopping Centers Upon Established Business Districts," Planning and Civic Annual, Washington, 1950.

17. Gallagher, Richard, "Traffic Engineering Can Be Applied to Practical Business Problems," Traffic Quarterly, vol. III, no. 1, January, 1949.

18. Gist, Noel P. and L. A. Halbert, Urban Society, New York: Thomas Y. Crowell Co., 1950.

19. Haig, Robert M., Major Economic Factors in Metropolitan Growth and Arrangement, New York: Regional Plan of New York and its Environs, 1927.

20. Harris, Chauncy O., and Edward L. Ullman, "Nature of Cities," The Annuals, vol. 242, November, 1945.

21. Hartman, George W., "The Central Business District--A Study in Urban Geography," Economic Geography, vol. 26, no. 4, 1950.

22. Hatt, Paul K., and Albert J. Reiss, Jr., "Function of the Central Business District in the Metropolitan Community," Reader in Urban Sociology, Glencoe, Illinois: The Free Press, 1951.

23. Hoover, Edgar M., The Location of Economic Activity, New York: McGraw-Hill, 1948.

24. Hoyt, Homer, Structure and Growth of Residential Areas in American Cities, Federal Housing Administration, Washington: Government Printing Office, 1939.

25. Hoyt, Homer, One Hundred Years of Land Values in Chicago, Chicago: University of Chicago Press, 1933.

26. Hoyt, Homer, "What Are the Danger Signals Indicating Sharp Declines in Property Values?" National Real Estate Journal, July, 1944.

27. Hoyt, Homer, "Structure of American Cities in the Postwar Era," American Journal of Sociology, vol. 48, 1943.

28. International City Manager's Association, Local Planning Administration, edited by Howard K. Menhinick. Second Edition, Chicago: International City Manager's Association, 1948.

29. Issacs, Reginald R., Effects of Business and Industrial Location on Residential Areas, Washington: Federal Home Loan Bank, 1945.

30. Johnson, Earl S., The Natural History of the Central Business District, With Particular Reference to Chicago, unpublished Ph.D. dissertation, Department of Sociology, University of Chicago, 1941.

31. Learned, Edmund P., Problems in Marketing, New York: McGraw-Hill Inc., 1936.

32. McKenzie, R. D., The Metropolitan Community, New York: McGraw-Hill, 1933.

33. McMichael, Stanley L. and Robert F. Bingham, City Growth and Values, Cleveland: Stanley McMichael Publishing Organization, 1923.

34. Metropolitan Planning Commission, Economic Supplement to the Regional Land Use Plan, Atlanta: Atlanta Metropolitan Planning Commission, 1953.

35. Metropolitan Planning Commission, Up Ahead, Atlanta: Metropolitan Planning Commission, 1953.

36. Miller, John A., "Is the Down-Town Shopping Area Doomed?" Traffic Engineering, November, 1945.

37. Mosier, Jack M., "Reduction of Excessive Areas in Commercial Zones," American Society of Planning Officials, Proceedings, 1949.

38. Nirenstein, Nathan, "There'll Always be a Main Street," Appraisal Journal, January, 1947.

39. Perry, Clarence Arthur, "The Neighborhood Unit, A Pattern for Planning Residential Developments," Neighborhood and Community Planning, New York: Regional Plan of New York and its Environs, 1929.

40. Proudfoot, M. J., "City Retail Structure," Economic Geography, vol. 13, 1937.

41. Queen, Stuart A. and David B. Carpenter, The American City, New York: McGraw-Hill, 1953.

42. Quinn, James A., Human Ecology, New York: Prentice-Hall, Inc., 1950.

43. Ratcliff, Richard U., The Dynamics of Efficiency in the Locational Distribution of Urban Activities, unpublished paper presented at Columbia University Bicentennial Celebration, January, 1954.

44. Ratcliff, Richard U., "The Problem of Retail Site Selection," Michigan Business Studies, vol IX, no. 1, 1941.

45. Regional Planning Committee, Planning For the Future of the Harrisburg Area, Harrisburg: Municipal League of Harrisburg, 1940.

46. Sheridan, L. J., "The Future of the CBD," Skyscraper Management, vol. XXVI, September, 1941.

47. Smith, Wilber S., and Theodore Matson, "Will Large Cities Finally Succumb to Transportation Crises?" Traffic Quarterly, vol. VI, October, 1952.

48. Thompson, J. Trueman, and Joseph T. Stegmaier, "The Effect of Building Space Usage on Traffic Generation and Parking Demand," Proceedings of the Highway Research Board, Washington, 1948.

49. Traffic Survey Committee, Study and Recommendations for Improving Traffic Movement in the CBD, Chicago: Mayor's Traffic Survey Committee, 1950.

50. Welch, Kenneth C., "Location and Design of Shopping Centers," American Planning and Civic Annual, Washington, 1951.

51. Wiemer, Arthur M., Principles of Urban Real Estate, New York: The Ronald Press Co., 1948.

52. Young, J. C., "Economic Effects of Expressways on Business and Land Values," Traffic Quarterly, vol. V, October, 1951.

Bus Terminals

1. Tobin, Austin J., "The Mid-Manhattan Bus Terminal of New York's Port Authority," Traffic Quarterly, vol. VI, January, 1952.

Centralization and Decentralization

1. Bartholomew, Harland, "Des Moines Revises its City Plan to Control Decentralization," Planning and Civic Comment, January, 1941.

2. Bartholomew, Harland, "Present and Ultimate Effect of Decentralization on American Cities," Real Estate Record, October, 1940.

3. Bromfield, Louis, "The Flight from Cities," Town and Country Planning, Summer, 1949.

4. Churchill, Henry S., "Influence of Traffic on Decentralization of Cities," Institute of Traffic Engineers Proceedings, 1948, Chicago, October.

5. Clark, Frederick P., "Concentration and Decentralization in the New York Metropolitan Region," Journal of the American Institute of Planners, Fall, 1950.

6. Cleveland Chamber of Commerce, Decentralization -- A Problem in Cleveland's Future, Cleveland, 1941.

7. Hoyt, Homer, "Forces of Urban Centralization and Decentralization," American Journal of Sociology, May, 1941.

8. Hoyt, Homer, "Urban Decentralization," Journal of Land and Public Utility Economics, August, 1940.

9. Peel, Roy V., "Decentralization in American Cities," Businessman's Conference on Urban Problems Proceedings, Chicago, 1950.

10. Reeder, Leo, "The Central Area of Chicago -- A Reexamination of the Process of Decentralization," Journal of Land and Public Utility Economics, November, 1952.

Helicopters

1. Planning Advisory Service, Heliports in the City Plan, P.A.S. Bulletin No. 52, July, 1953.

2. Port of New York Authority, Transportation by Helicopter, New York: Port of New York Authority Aviation Department, May, 1953.

Mass Transit

1. American Transit Association, Transit Girds for the Future, New York, 1946.

2. Bauer, John and Peter Costello, Transit Modernization and Street Traffic Control, Chicago: Public Administration Service, 1950.

3. Bingham, Col. S. H., Downtown U.S.A. -- Is It Doomed? from an address before the United States Conference of Mayors, New York, May, 1952.

4. Cincinnati City Planning Commission, Public Transit, Cincinnati, December, 1948.

5. Davis, Homer E. and W. Norman Kennedy, Urban Mass Transportation, Los Angeles, presented at Fourth Annual California Street and Highway Conference, February, 1952.

6. Georgia State Senate Transit Study Committee, A Plan for Transit Improvement in the Metropolitan Area of Atlanta, Georgia, Atlanta, 1953.

7. Gordon, Charles, "The Place of Public Transportation in the Future City," Institute of Traffic Engineers Proceedings, 1944, Chicago, October.

8. Groner, Powell C., "The Place of Public Transit in Community Planning," Planning and Civic Annual, Washington, 1949.

Parking

1. American Society of Planning Officials, "Parking Clinic", American Society of Planning Officials Annual Proceedings, Chicago, 1952.

2. Automotive Safety Foundation, Parking--How it is Financed, Prepared for National Retail Dry Goods Association, New York, 1952.

3. Beaumont, Allen B., "Financing Off-Street Parking," Proceedings of Third California Conference on Street and Highway Problems, University of California, Berkley, 1951.

4. Canning, William S., "Determining the Parking Requirements in a Business District," Institute of Traffic Engineers Proceedings, Chicago, 1940.

5. Charlotte, N. C., Traffic Engineering Department, Improvement Plan for Parking Facilities, Charlotte, January, 1952.

6. Clark, Frederick P., "Adequate Parking in Business Areas," Traffic Quarterly, vol. V, April, 1951.

7. Cleveland City Planning Commission, Cleveland Downtown Parking Survey--Final Report, Cleveland, October, 1952.

8. De Leuw, Cather and Company, Parking Survey and Program for Fresno, California, Prepared for Mayor and City Commission of Fresno, California, July, 1950.

9. Faustman, D. J., "Development of Sacramento's Off-Street Parking Program," Proceedings of Third California Conference on Street and Highway Problems, University of California, Berkeley, 1951.

10. Fisch, Fred W., "Plans for the Future of the Pedestrian," Institute of Traffic Engineers Proceedings, 1940, Chicago, October.

11. Hall, Glenn, "Off-Street Parking--Abstract of Papers by Lester Brinkman and Glenn Hall," Journal of American Institute of Planners, Fall issue, 1948.

12. Hanna, John T., "Factors Affecting Parker's Choice of Parking Lots or Garages," Traffic Quarterly, vol. III, October, 1949.

13. Hendon, John F. and Howard D. Leake, "When Private Enterprise Furnishes Public Parking Facilities," Traffic Quarterly, vol. V, October, 1951.

14. Jasper, Rufus G., "Pedestrian Control and Protection," Institute of Traffic Engineers Proceedings, 1940. Chicago, October.

15. Knapp, Kenneth, "Character and Extent of Off-Street Parking," Planning and Civic Annual, Washington, 1950.

16. LeCraw, Charles S., "Allentown Saves its Shopping Area," Traffic Quarterly, vol. III, January, 1949.

17. Levin, David R., "Coordinating All Parking Facilities Under the Unified System Concept," Traffic Quarterly, vol. VI, July, 1952.

18. Lewis, Harold M. and C. Earl Morrow, "Layout and Design of Parking Lots: Aesthetic Considerations," Traffic Quarterly, vol. VI, January, 1952.

18a. Lewis, Taylor D., "Parking Problems," Traffic Quarterly, vol. V, April, 1951.

19. Marsh, Burton W., "Parking and Terminal Problems," Traffic Engineering, February, 1945.

20. Matson, Theodore M., "Parking Problems of American Cities," Planning and Civic Annual, Washington, 1950.

21. McClure, Wesley C., "Developing Off-Street Parking," Proceedings of Third California Conference on Street and Highway Problems, University of California, Berkeley, 1951.

22. McCrosky, Theodore T., "Decentralization and Parking," Institute of Traffic Engineers Proceedings, Chicago, October, 1950.

23. McNeil, Donald M., "Relieving Congestion in the Pittsburgh Business District," Institute of Traffic Engineers Proceedings, Chicago, October, 1940.

24. Mickle, D. Grant, "Effect of Decentralization on Urban Traffic Problems," Institute of Traffic Engineers Proceedings, Chicago, October, 1940.

25. Mickle, D. Grant, "Campaign for Detroit's Pedestrian Protection," Institute of Traffic Engineers Proceedings, Chicago, October, 1940.

26. Mogren, Edward G., "A Review of Plans for Financing Municipal Off-Street Parking," Traffic Quarterly, vol. V, October, 1951.

27. Mott, S. H. and M. S. Wehrly, "Automobile Parking in the Central Business District," Urban Land Institute, Technical Bulletin, No. 6, July, 1946.

28. Missouri State Highway Department, A Comprehensive Parking Survey of the St. Louis, Missouri, Central Business District, St. Louis, Missouri State Highway Department in cooperation with the United States Bureau of Public Roads and St. Louis governmental agencies, 1951.

29. Nolting, Orin F. and Paul Opperman, The Parking Problem in Central Business Districts, Chicago: Public Administration Service, no. 64, 1938.

30. Osborne, Henry W., "Relieving Congestion in the Flint Business District," Institute of Traffic Engineers Proceedings, Chicago, 1940.

31. Philadelphia City Planning Commission, Parking Demand in the Central City, November, 1947.

32. Pratt, Charles O., "The Department Store and Parking," Traffic Quarterly, vol. VI, January, 1952.

33. Rhode Island Department of Public Works, A Parking Survey of the Providence Central Business District, Providence, 1945.

34. Ricker, Edmund R., The Traffic Design of Parking Garages, Satugutuck, Connecticut: The Eno Foundation, 1949.

35. Smith, Wilbur S., "The Relation of Traffic and Parking to Retail Business," Traffic Quarterly, vol. V, April, 1951.

36. Texas Highway Department, Parking Survey of the Dallas Central Business District, Dallas, 1951.

37. U. S. Chamber of Commerce, Chamber of Commerce Parking Clinic, Anderson, Indiana: Anderson Chamber of Commerce, September, 1952.

38. _____, Off-Street Parking, Washington: Chamber of Commerce Transportation and Communication Department, 1949.

39. Vogel, Joshua H. and Norbert F. Knecht, Parking of Motor Vehicles in Cities, Bureau of Governmental Research and Services, University of Washington, Seattle, April, 1949.

Traffic

1. Architectural Forum, "Urban Traffic Forum," February, 1953.

2. Eberle, George, "The Retail Merchant's Interest in the Traffic Problem," Traffic Quarterly, vol. V, April, 1951.

3. Forbes, T. W., "Psychotechnology in Traffic Studies," Traffic Quarterly, vol. III, April, 1949.

4. Goetz, Col. Robert C. F., "Driver I.Q.," Traffic Quarterly, vol. VI, July, 1952.

5. Kincaid, H. Evert, "Relieving Downtown Congestion," Planning and Civic Annual, Washington, 1949.

6. Klein, Alexander, "Solving the Traffic Problem," Traffic Quarterly, vol. III, July, 1949.

7. Lawrence, David L., "Pittsburgh's Better Traffic Program," Traffic Quarterly, vol. III, October, 1949.

8. Lee, Dorothy M., "Portland Protects its Pedestrians," Traffic Quarterly, vol. VI, July, 1952.

9. Soltmann, John T., "Ways in Which Traffic Situations Concern Chambers of Commerce," Traffic Quarterly, vol. III, July, 1949.

10. U. S. Chamber of Commerce, Making Better Use of Today's Streets, Washington, 1947.

Transportation

1. Buckley, James C., "Comprehensive Transportation and Terminal Planning for Large Urban Centers," Journal of the American Institute of Planners, vol. XIII, Winter, 1947.

2. Landon, Charles E., Transportation, New York: William Sloan Assoc., 1951.

3. U. S. Chamber of Commerce, Transportation Mobilization Roundtable, Washington, May, 1951.

Trucking

1. Goodwin, Charles A., "Truck Loading Facilities as Related to Parking," Traffic Engineering, February, 1950.

2. Knetzger, Austin C., "Fitting Truck Movement Efficiently Into the Traffic Problem," Traffic Quarterly, vol V, July, 1951.

3. Liberty Mutual Insurance Company, Elements of Multiple-Stop Pick-Up and Deliverly Operations in Urban Areas, Boston, 1950.

4. Matson, Theodore M., "Parking and Truck Loading," Traffic Engineering, October, 1948.

5. McConochie, W. R., "Trucks, Traffic, and Terminals," Traffic Quarterly, vol. III, October, 1949.

6. McCracken, George, "Ways and Means of Reducing Truck Loading and Unloading Congestion on Downtown Streets," Institute of Traffic Engineers Proceedings, 1948.

7. U. S. Chamber of Commerce, Solutions to the Problem of Merchandise Pick-Up and Delivery in Business Districts, Washington, 1950.

Railroads

1. Meeks, Carroll L. V., "Depots in the City Plan," Journal of the American Institute of Planners, vol. XIV, Spring, 1948.

Redevelopment

1. Architectural Forum, "Bob Dowling Climbs Philadelphia's Chinese Wall," April, 1953.

2. _____, "Philadelphia's Hour of Decision," June, 1952.

3. Armstrong, Robert H., "Obsolescence in Central City Areas," Traffic Engineering, March, 1944.

4. Klove, Robert C., "Techniques for Delimiting Chicago's Blighted Areas," Journal of Land and Public Utility Economics, vol. XVII, 1941.

5. Martin, Park H., "Pittsburgh's Golden Triangle," American Planning and Civic Annual, Washington, 1941.

6. Ministry of Town and Country Planning, Redevelopment of Central Areas, London: H. M. Stationery Office, 1947.